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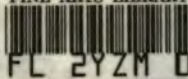
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MUSEUMS ASSOCIATION.

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OXFORD MEETING.

1897.

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MUSEUMS ASSOCIATION.

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# REPORT OF PROCEEDINGS

WITH THE PAPERS READ AT THE

EIGHTH ANNUAL GENERAL MEETING,

HELD IN OXFORD—JULY 6 TO 9, 1897.

EDITED BY

JAMES PATON, F.L.S.,

*Superintendent of Corporation Museums and Art Galleries, Glasgow.*

LONDON :

DULAU AND CO.

1897.

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## INTRODUCTORY NOTE.

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ANY Association may be said to come near an ideal condition when its rules are few, simple, and comprehensive ; it may be accounted prosperous and successful when its work is carried on with scarcely ever a reference to its rules ; and it is wisely guided when it tinkers and amends its constitution only under strongly felt necessity. In these respects the Museums Association can be fairly congratulated. Its rules are simple in the extreme ; little necessity has arisen for referring to them, and the few changes which have been made have not been in the direction of restriction, but only for the widening of boundaries and the enlarging of the scope of the Association. The Museums Association, by the most recent excision in its rules, has ceased to belong to the United Kingdom merely, and has thrown open its gates to the world. Thereby it has done in resolution only what it had long already accomplished in actual fact, for are not some of our most honoured members, even our Members of Council, the subjects of foreign powers ? It might perhaps have tended to symmetry and consistency when we were at the work had the words in Rule II. "throughout the Kingdom" been struck out, but in respect no special kingdom is indicated, the words may be interpreted as the kingdom of the whole world, a phrase which will cover all modes and forms of government. Moreover, the constitution of the United Kingdom itself is full of such picturesque anomalies, beloved traces of historic continuity, and why should not the Museums Association also thereby indicate that it is an evolution and has a history ?

The delightful visit which the Museums Association made to the University of Cambridge in 1891 is still fresh in the memory of many who were privileged to take part in the

proceedings on that occasion. In that ancient seat of learning and of thoroughly modern Museums and Picture Galleries, Museum officials had an opportunity of acquiring stores of knowledge and experience, for garnering which the days of the conference were all too short. It was not only from the collections, suggestive as these were in mounting and arrangement, and splendid as they were in character and standing, that the Museum officer was able to learn; but the able superintendents of these collections, and the University dignitaries generally engaged with such cordiality in the proceedings of the Association, as to render the meeting peculiarly valuable and instructive.

It was therefore with lively anticipations that the visit of the Association to the sister University City of Oxford was looked forward to, and the experience of the visit on the whole fully realised the high anticipations of members. The meetings of the Association in the two previous years had fallen to be held in cities more devoted to the commercial and industrial pursuits than to the cultivation of abstract science and ideal art. Not that these cities failed to present many features of great importance and interest to the Association. But when all is said and done, Newcastle and Glasgow are scenes of smoke, grime, and turmoil, and the contrasted calm of Oxford was a grateful and pleasing change to the members of the Association.

There is reason why Museum officials should look on Oxford with exceptional interest and veneration, and that, without making any invidious contrast of its scientific resources and art treasures with those of the sister University town. Oxford we can never forget, is the parent of us all. In the Ashmolean, Oxford was the first possessor of a public Museum, and the sturdy race of youthful institutions now growing up throughout the United Kingdom all derive from the collections bequeathed to the University by Elias Ashmole in the 17th century. Under some name, at that remote date, the Museum must have had a curator, and in such functionary we have to acknowledge and reverence our common ancestor.

Of their visit to Oxford the members of the Association should retain a happy recollection, and they owe a deep debt of gratitude to numerous University and Museum officials, who made the conference not only instructive but peculiarly happy and pleasant. Year by year the Association at its closing meeting passes a series of resolutions thanking those who have contributed to the business and success of the meetings, but these votes of thanks find no permanent record. It is therefore proper that we should here express to the learned President of the Association our sense of obligation for his weighty and impressive address, and our hearty thanks for the charming evening entertainment provided by him in the garden of Exeter College. The visits of inspection to the treasures in the University Galleries would certainly have been shorn of much of their interest had it not been for the courteous guidance and comments of Professor Percy Gardner and of Mr. Arthur Evans, the Ashmolean Keeper; and to these gentlemen also the Association is indebted for a brilliant evening entertainment at which members were privileged to meet many distinguished persons. The Pitt-Rivers Museum itself is, at any time, a peculiarly attractive and interesting collection; but how much more delightful and instructive did it become under the genial and willing guidance of Mr. Henry Balfour. To Mr. Balfour also is the Association indebted for acting as general chairman during the meeting, and no more amiable and able presiding officer could have been desired. In the multiplicity of attractions which Oxford offers, it is to be feared that the Botanical Gardens and Herbarium were overlooked by some; but none the less are the thanks of the Association due to Mr. Druce for the zealous readiness with which his services were placed at the disposal of the visitors. And finally, not a little of the pleasure and success of the Oxford meeting was due to the courteous and efficient manner in which the duties of local secretary were discharged by Dr. Benham, on whose subsequent appointment to an important colonial chair we may congratulate both himself and the Colony of New Zealand.

# LIST OF MUSEUMS AND ASSOCIATES

BELONGING TO THE ASSOCIATION, WITH THE NAMES OF THE  
REPRESENTATIVES AT THE OXFORD MEETING.

## MUSEUMS.

Baroda . . .		Manchester : Owens	
Blackburn . . .		College . . .	<i>Prof. S. J. Hickson,</i> <i>F.R.S., and W. E.</i> <i>Hoyle, M.A.</i>
Bolton . . .	<i>Alderman J. T.</i> <i>Brooks, Council for N.</i> <i>Ramsden and W. W.</i> <i>Midgley, F.R. Met.S.</i>	„ Queen's Park . .	
Bootle . . .		Middlesborough . .	
Bradford . . .		Newcastle-upon-Tyne	
Brighton . . .		Northampton . . .	<i>T. J. George.</i>
Cape Town . . .		Nottingham . . .	
Cardiff . . .		Oxford Museum of	
Carnegie Museum . .		Comparative	
Chester . . .		Anatomy . . .	<i>E. S. Goodrich and</i> <i>Wm. P. Pycraft.</i>
Colombo . . .		Perth . . .	
Dundee . . .	<i>John Maclauchlan.</i>	Perth, Western Aus-	
Glasgow . . .	<i>Councillors J.</i> <i>Steele and J. Shaw-</i> <i>Maxwell, and Jas.</i> <i>Paton.</i>	tralia . . .	
Hereford . . .		Saffron Walden . .	
Jamaica, Institute of		Salford . . .	
Liverpool . . .	<i>Henry O. Forbes,</i> <i>LL.D.</i>	Salt Lake City	
London: Horniman's		(Deseret Museum) <i>Prof. James E.</i> <i>Talmage, Ph. D.,</i> <i>F.R.S.E.</i>	
Museum		Sheffield : Public	
„ Parkes' Museum		Museum . . .	<i>Alderman W. H.</i> <i>Brittain, J.P., and</i> <i>E. Howarth.</i>
of Sanitary		„ Ruskin Museum	<i>Alderman Joseph</i> <i>Gamble.</i>
Institute		Stockport . . .	
„ Sir Henry Peek's		Sunderland . . .	<i>Robert Cameron,</i> <i>M.P., James M. E.</i> <i>Bowley.</i>
Museum . . .	<i>Charles Grover.</i>	Sydney (Australian	
„ Pharmaceutical		Museum) . . .	
Society . . .	<i>Edward Morell</i> <i>Homes.</i>	Warrington . . .	<i>Charles Madeley.</i>
Maidstone . . .		Winchester College	
		Worcester . . .	<i>Wm. H. Edwards.</i>
		York . . .	<i>H. M. Platnauer,</i> <i>B.Sc.</i>

## ASSOCIATES.

*Those printed in italics were present at the meeting.*

*Anderson, Professor W. C. F.*, Firth College, Sheffield.  
*Balfour, Henry*, M.A., Oxford.  
*Bather, F. A.*, British Museum.  
*Benham, Dr. W. B.*, M.A., Oxford.  
Bolton, H., F.R.S.E., Manchester.  
Brünchorst, Dr. J., Bergen.  
Carr, Mrs., Nottingham.  
Cheeseman, J. F., Auckland Museum, N.Z.  
Crake, William, Hastings.  
Croston, J. W., Prestwich.  
Denny, Professor Alfred, Sheffield.  
Donner, E., Manchester.  
Donner, Mrs. E., Manchester.  
*Evans, Arthur J.*, M.A., Oxford.  
Flower, Sir W. H., British Museum.  
*Gardner, Professor Percy*, M.A., Oxford.  
*Greening, Linneus*, F.L.S., Warrington.  
*Hall, Kate M.*, Whitechapel Museum, London, E.  
Henshaw, Samuel, Boston.  
*Hodgson, T. V.*, Plymouth.  
Howse, Richard, Newcastle.  
Hughes, Professor T. M'Kenny, Cambridge.  
Hutchinson, J., Haslemere.  
Hutton, Captain F. W., Christchurch, N.Z.  
Jackson, Dr. Robert T., Harvard University.  
Jennings, A. Vaughan, Dublin.  
Longfield, T. H., F.S.A., Dublin.  
Lucas, F. A., U.S. National Museum.  
Martin, R. F., London.  
Meyer, A. B., M.D., Dresden.  
Monks, F. W., Warrington.  
Newton, E. T., F.R.S., London.  
Norman, Canon, LL.D., Durham.  
Parker, Professor T. Jeffrey, New Zealand.  
Phipson, Miss Emma, London.  
*Poulton, Professor E. B.*, M.A., F.R.S., Oxford.

- Rudler, F. W.*, F.G.S., London.  
*Scharff, Dr. R. F.*, Dublin.  
*Sclater, Dr. P. L.*, London.  
*Smith, H. J.*, American Museum, N.Y.  
*Trail, Professor*, Aberdeen.  
*Tubbs, Mrs.*, Hastings.  
*Weiss, Professor F. E.*, Manchester.  
*White, Thomas*, London.  
*Woodward, A. Smith*, London.  
*Woodward, Henry*, LL.D., F.R.S., British Museum.  
*Woolnough, Frank*, Ipswich.  
*Yates, George C.*, Swinton, Nr. Manchester.

# MUSEUMS ASSOCIATION.

STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDING JUNE, 1897.

RECEIPTS.		EXPENDITURE.	
Balance from previous Year,	- £40 4 5	Printing Reports, -	- £42 12 0
Members' Subscriptions, 1896,	- 36 15 0	Printing Circulars, Cards, &c., -	- 3 14 0
" Arrears, 1895, -	- 2 2 0	Carriage and Postage of Reports, -	- 2 10 2
Associates' Subscriptions, 1896,	- 20 9 6	H. M. Plataner—Expenses and Disbursements, -	- 12 6 4
" Arrears, 1895, -	- 2 2 0	F. Howarth—Expenses and Disbursements, -	- 7 12 9
" " 1894, -	- 0 10 6	Banker's Commission, -	- 0 2 3
Annual Reports, -	- 13 0 0		
Advertisements, -	- 4 0 0		
Banker's Interest, -	- 0 12 5	Balance, -	- £68 17 6
			- 50 18 4
	<u>£119 15 10</u>		<u>£119 15 10</u>
Balance brought forward, -	- £50 18 4		
Members' Subscriptions, 1897, -	- 8 8 0		
Associates' Subscriptions, 1897, -	- 5 14 6		
Cash in Bank, -	- £65 0 10		
Subscriptions in Arrears, 1896, -	- £2 12 6		

8th July, 1897.

W. H. BRITTAIN,  
*Treasurer.*

Audited and found correct,  
J. M. E. BOWLEY.  
CHARLES MADELEY.



## GENERAL MEETING.

JULY 9, 1897.

The following alterations of Rules in accordance with notice duly given were unanimously adopted :—

Alteration of Rule VI. by the insertion of the words “or Secretary and Editor” after the words “two Secretaries.”

Alteration of Rule VI. by the omission of the word “two” before “Vice-Presidents,” and by the substitution of “*four* ordinary members of Council to retire each year” for “*two* ordinary members of Council to retire each year.”

Rule I.—Omit the words “the” before “Museums” and “situated in the United Kingdom” after “Museums.”

Also in Rule I. omit “and” after “United Kingdom” and add “and of Honorary Members.”

Add to Rule I.—“That the number of Honorary Members shall not exceed fifteen ; they shall be distinguished either for success in Museum work or services rendered to the Association ; they shall be nominated by the Council and elected by the Association.”

THE HONORARY TREASURER read the Financial Statement, which was adopted by the meeting.

MR. ALDERMAN W. H. BRITTAIN, J.P., F.R.G.S., was elected President for the following year.

The following were elected Vice-Presidents :—Principal W. M. Hicks, M.A., F.R.S. ; Professor Anderson, M.A. ; Professor Denny, F.L.S. ; Alderman Gamble, Dr. H. C. Sorby, J.P., F.R.S. ; Mr. H. M. Platnauer, B.Sc.

The Council was constituted as follows :—Henry Balfour, M.A. (Oxford) ; W. B. Benham, M.A., D. Sc. (Oxford) ; F. A. Bather, M.A. (British Museum) ; Henry Coates, F.R.S.E. (Perth) ; H. O. Forbes, LL.D. (Liverpool) ; E. M. Holmes (London) ; T. H. Longfield, F.S.A. (Dublin) ; C. Madeley (Warrington) ; W. W. Midgley, F.R.Met.S. (Bolton) ; Councillor Steele (Glasgow) ; Professor J. E. Talmage (Salt Lake City) ; James Ward, F.S.A. (Cardiff).

MR. HOWARTH was elected Secretary and Treasurer, and MR. C. BRADSHAW, F.C.S., Local Secretary.

On the motion of MR. HOYLE, seconded by MR. PLATNAUER, MR. JAMES PATON was appointed Editor.

The following Resolution was unanimously adopted :—

“That this Association desires to record its sense of the importance and value to provincial Museums of the circulation system of the Science and Art Department, and, while acknowledging the benefits many institutions have hitherto derived from the support they have obtained through that agency, the Association is of opinion that the time has now come when the system should be greatly extended, both as to the number of institutions aided and the amount and nature of the loans sent periodically to individual Museums.”

“This Association also feels the importance of some of its representatives being heard before the Committee of Enquiry.”

## OFFICERS AND COUNCIL, 1897.

---

### *President :*

Professor E. RAY LANKESTER, LL.D., F.R.S., &c.

### *President-Elect :*

Alderman W. H. BRITAIN, J.P., F.R.G.S., &c.

### *Past Presidents :*

J. WILLIS CLARK, M.A.	The Rev. Canon NORMAN, M.A.,
W. BOYD DAWKINS, M.A., F.R.S.	D.C.L., F.R.S., F.L.S.
Sir W. H. FLOWER, K.C.B., D.Sc., F.R.S.	JAMES PATON, F.L.S.

### *Vice-Presidents :*

HENRY BALFOUR, M.A. (Curator of the Pitt-Rivers Collection).	E. B. POULTON, M.A., F.R.S. (Hope Professor of Zoology).
ARTHUR J. EVANS, M.A. (Keeper of the Ashmolean Museum).	E. B. TYLOR, M.A., D.C.L. (Professor of Anthropology and Keeper of the University Museum).
PERCY GARDNER, M.A. (Professor of Classical Archaeology and Art).	
H. A. MIERS, M.A., F.R.S. (Waynflete Professor of Mineralogy).	S. H. VINES, M.A., D.Sc., F.R.S. (Sherardian Professor of Botany).

### *Treasurer :*

Alderman W. H. BRITAIN, J.P., F.R.G.S. (Sheffield).

### *Council :*

F. A. BATHER, M.A. (British Museum).	T. H. LONGFIELD, F.S.A. (Dublin).
R. CAMERON, M.P. (Sunderland).	C. MADELEY (Warrington).
HENRY COATES, F.R.S.E. (Perth).	W. W. MIDGELY, F.R.Met.S. (Bolton).
Professor J. W. CARR, M.A., F.L.S., F.G.S. (Nottingham).	F. W. RUDLER, F.G.S. (London).
H. O. FORBES, LL.D. (Liverpool).	Councillor STEELE (Glasgow).
F. VALLANCE JAMES, F.S.A. (Maidstone).	Professor J. E. TALMAGE (Salt Lake City).

### *General Secretaries :*

E. HOWARTH, F.R.A.S. F.Z.S. (Sheffield).  
H. M. PLATNAUER, B.Sc. (York).

### *Editor :*

JAMES PATON.

### *Local Secretary :*

W. B. BENHAM, MA., D.Sc., University Museum (Oxford).

## PROGRAMME OF PROCEEDINGS.

TUESDAY, JULY 6TH.

12 to 6 p.m.	Reception Room at the University Museum open.
3 p.m.	Meeting of Council in the University Museum.
9 to 12 p.m.	Garden Party in Exeter College, by kind invitation of the President.

WEDNESDAY, JULY 7TH.

10 a.m. to 1 p.m.	<p>At the Ashmolean Museum.—Opening Address by the President, Professor E. RAY LANKESTER.</p> <p>The following papers were read and discussed :—</p> <p>On the “Setting” of Lepidopterous Insects. By Professor E. B. POULTON, M.A., F.R.S.</p> <p>Remarks on the Classification, &amp;c., of the Minerals in the Oxford Museum. By Professor H. A. MIERS, M.A., F.R.S.</p> <p>Remarks on the System of Arrangement of the Pitt-Rivers Collections. By HENRY BALFOUR, M.A.</p> <p>The Relation of Museums to Elementary Education. By Mrs. TUBBS.</p>
1 to 2 p.m.	Luncheon at the “Randolph.”
2 to 5 p.m.	Visits to Museums, under the guidance of the several Curators.
2 p.m.	Mr. EVANS conducted Members round the Ashmolean Collection.
2.30 p.m.	Mr. DRUCE met Members at the Botanical Gardens, and conducted them round the Herbarium and Library.
2.30 p.m.	Professor GARDNER conducted a party round the Collection of Casts and Apparatus of the Department of Classical Archæology, and gave a short discourse thereon.

## THURSDAY, JULY 8TH.

10. a.m. to 1 p.m.	<p>The following papers were read and discussed :—</p> <p>Popular Museum Exhibits. By HARLAN J. SMITH American Museum.</p> <p>Museum Preparations. By Mr. GOODRICH.</p> <p>Federal Staff for Museums. By Professor W. M. FLINDERS PETRIE.</p> <p>The Colombo Museum. By GERARD JOSEPH.</p> <p>On the Arrangement of Ethnographical Collections. By F. W. RUDLER.</p>
11 a.m.	Parties were conducted round the University Press.
1 to 2.30 p.m.	Luncheon at the "Randolph."
2.30 to 5 p.m.	Visits to Museums and other places of interest.
2.30 p.m.	Parties were conducted round the University Press.
8.30 to 11 p.m.	Mr. ARTHUR J. EVANS and Professor P. GARDNER invited Members to an "At Home" in the Ash- molean Museum in the evening.

## FRIDAY, JULY 9TH.

10 to 11.30 a.m.	<p>The following papers were read and discussed :—</p> <p>Preparing Wax Models of Flowers. By Professor TRAIL.</p> <p>On the Circulation System at South Kensington. By E. HOWARTH.</p>
11.30 to 1 p.m.	Business Meeting.
1 to 2.30 p.m.	Luncheon.
2.30 to 5 p.m.	Visits to Museums, &c.

## MUSEUMS ASSOCIATION RULES.

AS AMENDED AND ADOPTED AT THE OXFORD MEETING, 1897.

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1.—That this Association be called the “MUSEUMS ASSOCIATION,” and shall consist of representatives of Museums, of other persons engaged in scientific work or interested in Museums, who may be admitted as Associates, and of Honorary Members. The number of Honorary Members shall not exceed fifteen; they shall be distinguished either for success in Museum work, or services to the Association; they shall be nominated by the Council, and elected by the Association.

2.—The object of the Association shall be the promotion of better and more systematic working of Museums throughout the Kingdom. In order to promote a better knowledge of Museums, the Association shall meet in a different town each succeeding year.

3.—That each Museum contributing not less than one guinea a year be a Member of the Association, and that individuals interested in scientific work be admitted as Associates on payment of 10s. 6d. annually.

4.—That each Museum be represented by three delegates, each having one vote. Each Associate to have one vote.

5.—That each Museum belonging to the Association and each Associate receive one copy of the publications of the Association.

6.—That the affairs of the Association be managed by a Council consisting of a President, Vice-Presidents, two Secretaries, or a Secretary and an Editor, a Treasurer, and twelve ordinary Members; three to constitute a quorum; all past Presidents to be *ex-officio* Members of Council. The President, Vice-President, and four ordinary Members of Council, to retire each year and to be ineligible for re-election for one year.

7.—The Council to be elected at the Annual General Meeting, and to hold office for one year. The Council shall have power to fill any vacancies that may occur in its ranks between Annual Meetings.

8.—That a General Meeting of the Association be held annually, for the transaction of business, the reading of papers, and the discussion of matters relating to Museums.

9.—The place and time of the Annual Meeting to be determined by the Council.

10.—All new rules, and all resolutions affecting existing ones, to be submitted to the Annual General Meeting. One calendar month's notice to be given of all resolutions affecting the rules.



## PRESIDENTIAL ADDRESS

BY

E. RAY LANKESTER, M.A., LL.D., F.R.S.

---

ON behalf of my colleagues who are this year vice-presidents of your Association, and in my own name, it is my pleasant duty to bid the Museums Association welcome to Oxford. I hope that you may have an enjoyable and instructive meeting in our ancient University. It is also a pleasure to me to be able to thank you for the honour which you have done me in electing me as your president on this occasion.

The objects of the Association appear to me to be excellent, and worthy of the hearty support of all who are interested in the care and arrangement of Museums. That this necessarily somewhat limited body of men should annually visit some city or town where there are Museums of interest, and there discuss Museum-craft and Museum-policy whilst visiting and observing the efforts of the local Museum directors and curators, is, I think, a most reasonable and useful programme. It would, however, I venture to say, be a mistake for the Association to imitate the organisation and procedure of larger Associations and Congresses. This Association must not wait to be invited to visit a desirable town or city, nor must it look for a public reception and the ministrations of local committees and local secretaries. It must choose—as on the present occasion—its own place of meeting, and ascertain whether those who have charge of the Museum or Museums in the selected town are willing and able to aid in rendering the visit of the Association an agreeable and useful one.



That was the course pursued on the present occasion, and I was able to assure the secretaries of the Association, in answer to their inquiries addressed to me, that my colleagues, Mr. Arthur Evans, the Ashmolean curator; Professor Percy Gardner, who has charge of the Collections of Classical Archæology; Mr. Henry Balfour, the curator of the Pitt-Rivers Collection of Anthropology; Professor Poulton, the Hope Professor, who has charge of the magnificent Hope Collection of Insects; and Professor Vines, who as Professor of Botany administers our varied collections of living and dried plants, would gladly join with me in welcoming the Association to Oxford, and would personally devote most of their time during its visit to showing the Collections in their charge to our visitors. Dr. Blaxland Benham, the Aldrichian Demonstrator of Anatomy, very kindly consented to assist the secretaries of the Association in making the necessary local arrangements, and I trust that you will find everything planned so as to render your visit a pleasure as well as a means of progress in the art and craft of Museum management. On our side we look forward to valuable suggestions, criticisms, and also contributions of specimens and exchanges from you—our visitors.

In those larger and somewhat wearying Associations, the imitation of which I deprecate, the annual president is expected to give an exhaustive address on some or a multitude of subjects. There is no such expectation, I am glad to say, on the present occasion. It is, I think, felt that it would be a mistake to make what should be a friendly visit into a demand for the material which journalists call "copy." You have published in your transactions two of the most important essays in existence, dealing with the theory and practice of Museum administration. I refer to that by the late Professor Brown Goode—a man no less beloved for his genial courtesy than admired for his sagacity and scientific discoveries—and to that by Sir William Flower. These two papers contain very nearly all that can be said in a general way about Museums. The principles laid down by each of those writers are most

fully accepted by me. It is, however, easier to arrive at principles than to act upon them, to point out the ideal path than to tread it, and this is especially true in regard to Museums, and more true of the Museums existing in the British Islands than of those now being constructed, or about to be constructed, in the United States and the British Colonies. Most Museums in this country (and Oxford forms no exception) have such a peculiar ancient history, are subject to the government of such strangely ignorant boards or committees, are so ill-supplied with funds, and so completely misunderstood or else neglected by the community in the midst of which they are placed, that it is impossible for their curators or directors to do more than apply in a fragmentary way the admirable principles of Brown Goode and Flower, however warmly they may believe in them. Want of money is the chief difficulty, and with it goes want of local interest. This often arises from the want of money, since by adequate expenditure the Museum might be made what it very often is not—so attractive and instructive as to compel local interest and support.

In Oxford, as elsewhere, Museums have suffered and do suffer from some of the causes above-named. We cannot start afresh and work on the principles which have only begun to force themselves into recognition within the last ten years. Our great University Museum building in the Parks, which is only forty years old, though it apparently afforded to the architects and artists who presided over its construction great satisfaction, both æsthetic and pecuniary, is simply an absurdity judged by the modern standard of Museum requirements. Nevertheless, I think you will all agree with me that it is in many respects a very beautiful place. The great defect which it presents as a Museum building is that there is a large central court lit from above by a continuous glass roof. The exhibition of table-cases is therefore a failure, owing to the reflection of the pattern of the glass roof in the cases. Such huge courts are probably altogether unsuitable to Museum purposes. In

our Museum, moreover, the construction by the talented architect of a vaulted corridor all round the court has rendered the otherwise valuable wall-space very nearly useless. A defect of a different kind is that no space was provided in the building of our Museum for unexhibited collections, which should, in any large and important Museum devoted to the serious teaching of natural history, have a space provided for them equal in bulk to that assigned to the exhibited collections. The court is surrounded by small rooms and laboratories, so that extension has been found extremely difficult.

Were the University to-day constructing a Museum, I have no doubt that sounder principles would prevail, though it is always extremely difficult, even after such costly experiments as have been made in Oxford, to manage to erect a Museum or a Library with proper attention to the requirements to meet which the building is erected. That enemy of the human race—the eminent architect—is always lying in wait. He deliberately and habitually perverts the funds entrusted to his discretion, so as to produce a showy and expensive building, whilst ignorantly and shamelessly neglecting the essential purposes for which the building is required. Huxley's advice is, I am convinced, more than ever needed. He, you will remember, recommended that for any such building you should have nothing to do with an architect in the first place, but employ an honest engineer in consultation with experts in the subject to which the building is to be devoted, and that subsequently, if you have funds in hand, you may employ an eminent architect to prepare an elevation more or less ornate according to the funds at your disposal. Acting upon that advice I designed and erected the Marine Laboratory at Plymouth—of which I am not a little proud both in respect of its utility and beauty and of its relatively small cost.

I think you will find that the rooms which have been added to the building in which we are meeting to-day for the reception of the Ashmolean and Fortnum collections are designed with proper regard to their use, and have a great advantage over those

of the Museum in the Parks, owing to the fact that at the time of their construction there was no opportunity for an architect to glorify himself and make his employers ridiculous, since the ornamental front of the building had been completed many years ago.

I think it may be of some service to members of the Association if I briefly mention to-day what collections are preserved and exhibited in this building, and what in the University Museum in the Parks. The building in which we are sitting has hitherto been called the University Galleries. I expect it will retain that name, although it now comprises the Ashmolean Museum, as well as the University Picture Gallery and the Taylor Institute of Modern Languages.

Our University Museums in Oxford start from the Ashmolean, and it is only right and duly commemorative that the name of Elias Ashmole should be perpetuated as it is in the title of my friend, Mr. Arthur Evans, the director of this Museum, who is called the Ashmolean Keeper.

Ashmole's collections, bequeathed in 1678 to the University, consisted of what were called "natural and artificial curiosities." They were housed in a building, until three years ago called the Ashmolean Museum, expressly erected for them by the University, and completed in 1683. Such an old-time Museum still exists in the City of Canterbury, and I have no doubt in other towns also. Many and varied additions accumulated round this nucleus—the Dodo's head and foot being almost the only original specimen of Ashmole's natural curiosities which the University still possesses.

In 1860 the zoological and other natural curiosities from the Ashmolean Museum were removed to the University Museum in the Parks then recently built. What may be called the antiquarian portion of the Museum still remained in its old home, and received continual and valuable additions until, three years ago, it was removed and incorporated with the beautiful collections at that time presented by Mr. Fortnum to the University, in new and commodious premises, in the University

Galleries. The collection of original Græco-Roman marbles and of casts were incorporated with the Ashmolean and Fortnum collections, so that we have now in the building, where we are assembled, a very fine and well-arranged series of objects, illustrative of classical and mediæval archæology and of the history of art. Under a separate administration there is also in this building the collection of oil paintings of various schools, of Raphael's and Michel Angelo's drawings, and of Turner's water-colours, belonging to the University.

I will not trespass further upon the domain of my colleagues, the Ashmolean Keeper and the Professor of Classical Archæology, but proceed to trace the fate of the natural-history specimens removed from the old Ashmolean. They, together with the anatomical preparations and skeletons deposited by Christ Church and removed from the Museum of the Lee's Reader in that collegiate house, with the further addition of the vast Collection of Insects and other Invertebrates bequeathed by Mr. Hope, and of the Buckland and Pengelly Collections of Fossils, formed the material with which the new Museum was furnished. The Linacre Professor (the late Dr. Rolleston) was placed by statute in charge of the Collections of Anatomy and Ethnology, the Professor of Geology (Phillips) in charge of the Fossils, the Professor of Mineralogy (Maskelyne) in charge of the Minerals, and the Hope Professor (Westwood) in charge of Hope's Collections of Insects and other zoological specimens. A keeper of the Museum was appointed (at present Professor E. B. Tylor), who has, however, no relation to any of the collections, but is under the University Board, called the Delegates of the Museum, responsible for the general care of the building itself. Various portions of the central court and a proportion of the surrounding rooms were assigned to each professor for the display of his collections. I am not going to trouble you with a long history, but I may suggest to you, what is indeed fairly obvious, that those professors had a very big job on their hands. They had to teach, and at the same time to unpack and revise the accumulations of

centuries, and to procure new specimens necessary for the illustration of their teaching. It was too much to expect forty years ago that the University, after expending some £200,000 on what was considered a very beautiful and sumptuous building, would provide the professors with skilled assistants in arranging and caring for the collections. It was hoped that in time things would shake themselves somehow into place. But they have not completely done so, even after forty years. Collections necessary for teaching were more or less roughly set out by each professor, and in the department of Comparative Anatomy many beautiful and valuable additions were made to the collections by the efforts of Professor Rolleston and his assistant, Mr. Charles Robertson. To these many most important additions were made by my dear friend and fellow-student, the successor of Rolleston, the late Professor Moseley. But the Geological Collections have never yet been completely unpacked from the cases in which they were brought to the Museum, and the big task of going over them and selecting those to keep and those to deposit "elsewhere" remains for our new Professor of Geology—Dr. Sollas—who, we may hope, will receive from the University, funds for the payment of skilled assistance, which his predecessors have never had, as well as space sufficient for the display of the more instructive specimens in proper light and cases.

It must not be supposed that I am complaining in your presence of anything which could be called neglect or indifference on the part of the University in regard to these collections. I am merely explaining to you the difficulties of the situation and the history of it as an apology for the want of that perfection in order and taste in the exhibition of our natural history collections, which we all desire and, under difficulties, aim at. The demands upon the resources of the University for the provision of additional laboratories and Museum buildings since the building of the University Museum have been very heavy, and have been really met in a most generous spirit. No one can fail to regard what has been done as generous in amount and intention, who duly considers the

fact that the majority of those who take part in the government of the University have no interest in or knowledge of the sciences to which our collections and our laboratories relate. One splendid addition to the University Museum was made in 1886, when the north-east annexe was built for the reception of the magnificent anthropological collection, presented by General Pitt Rivers. This collection has the advantage of having been carefully selected, and its arrangement indicated by the donor. It has also from the first benefited by the constant care and practically unremunerated services of the Pitt-Rivers curator, Mr. Henry Balfour. Though the manual assistance and funds at his disposal have been small, out of all proportion to the importance of the collection, yet you will be able to see in the Pitt-Rivers annexe a collection which is beautifully arranged, instructively labelled, and thoroughly well cared for. What you would probably like to see produced in connection with this delightful collection, as much as I should, is an illustrated catalogue.

Within the last few years the recently appointed professors have made strenuous efforts to bring the collections in their charge into order. In the Hope department of entomology you will see that Professor Poulton has thoroughly rearranged the rooms assigned to his work, has overhauled the vast collections, and is proceeding with the aid of volunteer entomologists, as well as that of his paid attendant, to introduce the most approved method of arrangement and labelling. He has effected a marvellous improvement, and has inspired such confidence in the thoroughness of his guardianship of the collections under his care, that Messrs. Godman and Salvin have presented to the University the duplicate Lepidoptera of their great Central American collection, of which the types are in the British Museum. The Hope collection is fulfilling the intentions of its founder as an important centre of entomological study, and a place of reference and record.

Professor Miers has revised the collection of minerals already brought to high efficiency by Professor Maskelyne, and has added many new specimens.

Some four years ago the area of the court under my charge was extended so as to comprise both sides of the central aisle, and the zoological collections there placed. I have accordingly been able to arrange in one zoological series the skins of animals formerly considered as distinctively "zoological" specimens, together with their skeletons and characteristic viscera. In this series I have also included the representatives of extinct groups. The first principle which I have sought to carry out is, accordingly, that there shall only be one series instead of three, viz., zoological, anatomical, and palæontological.

In the second place, I have endeavoured to separate altogether those specimens which are worth public exhibition in a glass case from the much larger series of objects which, though extremely valuable to the student, can not be properly shown on account of the limited space at our disposal. These are kept in drawers and cabinets, and on shelves in scattered rooms, and in large cases in a closed aisle of the court, as well as in vaults which were recently opened for the purpose.

Formerly the cases were overcrowded, and used rather as store cases than exhibition cases. The students were allowed to open the cases and remove the crowded specimens for examination. As an inevitable result valuable specimens—in fact nearly every skeleton in the place—had been seriously damaged. Most of the cases are not well devised for the kind of exhibition which, following Sir William Flower, I have introduced, but a certain number of new cases have been provided in which we are gradually arranging carefully planned and labelled preparations of the Invertebrata. In place of the old-fashioned round bottles, I make use of flat-faced jars with polished surface. Mr. Goodrich, of Merton College, who has for five years worked with me in the rearrangement of the Museum, is responsible for practically all the preparations, excepting those of birds, and for many ingenious devices in labelling. That enthusiastic ornithologist, Mr. Pycraft, has been my second assistant for some years, and has made many beautiful preparations illustrative of bird



structure. The time and money required for a complete revision of the exhibited collection on the basis we have adopted is larger than I had anticipated, or than most persons would suppose. Most of our cases are still very incomplete, some only sketched out, but they are continually progressing. Our great wants are more space and better cases for exhibits, proper rooms for the very large and important unexhibited collections, and money to pay salaries to additional skilled assistants. One must, however, make the best of the means at one's disposal, and cut one's coat according to the cloth.

Before I leave the subject of my own department of the Museum, I should wish to draw your attention (in anticipation of your visit to it) to the numerous beautiful casts which are incorporated in the exhibited series. Some of these—Sphenodon, coloured from life; the jaws of Ornithorhynchus, and the enlarged models of Stonesfield jaws have been prepared in the workshop of my department—largely by Mr. Pycraft. Under my own immediate direction, others have been purchased or presented, such as that of Dinoceras, of Phenacodus, of Ceratodus, of the restored skull of Thylacoles, many fossil forms from the British Museum, and the two lizards—the Teguexin and the Heloderm—the last sending of my deeply-regretted friend, Brown Goode. Had the Association's visit been a month later the Brussels Ignanodon and Seeley's Pariosaurus would have been ready to receive their criticism in close proximity to the great bones of Philips' Ceteosaurus.

Before concluding I should like to make a suggestion, which I think may prove of practical utility. The members of the Association are acquiring—indeed have already acquired—a very large experience of Museum buildings and Museum arrangement. I venture to suggest that a committee should be appointed to give practical value to that experience for the general good. I should like such a committee to report upon two very important questions, viz. :—

- I. What is the best form and arrangement of rooms in a building intended to serve as a Museum?

II. What is the best way of exhibiting specimens, according to their various kinds, in a Museum?

These questions might now be dealt with by such committees on the basis of an extended experience.

In regard to the question No. I., it would be necessary to distinguish various kinds of Museums (*a*) according to the idea or purpose of the Museum, and (*b*) according to the funds and space available for its erection and maintenance. It would be valuable to have the conclusion of such a committee as to the relative proportion to be assigned to exhibited and unexhibited collections, and even more important to know what size of halls or rooms they would recommend, and whether they would approve sky-lights or side-lights, and the exact proportions and relations of the lights in regard to the wall space.

As to question II., one would gladly study a report comparing the advantages of upright cases, table cases, and sloped-back cases, for various purposes. Such a report would give an account of other contrivances such as that used by Professor Charles Stewart, at the College of Surgeons, who has frequently a separate complete little glazed case for each specimen or small set of specimens, the series of little cases being arranged side by side on open shelves.

In the consideration of both questions I. and II., the committee would no doubt take into consideration not only the best means of mechanically storing or exhibiting collections, but also those most important features which give to a well-arranged Museum a charm and attraction like that of a well-written, well-bound, well-illustrated book—features which give to the work of the Museum curator a special and unsuspected delight, and render it necessary for the successful Museum director or curator to be an artist as well as a man of learning.

## THE METHODS OF SETTING AND LABELLING LEPIDOPTERA FOR MUSEUMS.

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By E. B. POULTON, M.A., F.R.S., Hope Professor of Zoology in the  
University of Oxford.

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UNTIL quite recent years the method of setting butterflies and moths adopted in this country differed very widely from that which prevailed and still prevails on the Continent. Furthermore, the continental method has been uniform, while the British has varied in many directions, according to the taste of different distinguished collectors, each of whom may be said to have founded a fashion which endured for a time and over a more or less limited area.

In continental setting very long ( $1\frac{1}{2}$  inches or more, and inconveniently flexible for use with a cork lining to the drawer) foreign pins are used ; the insect being pierced so that the pin is as nearly as possible upright. The insect is raised on the pin so that a length of only from  $\frac{3}{32}$  to  $\frac{1}{4}$  of an inch projects above the dorsal surface of the thorax. The wings are extended on flat boards, the object being to render them as horizontal as possible. The margin of the fore wing which overlaps the hind wing (inner margin) is placed at a right angle to the long axis of the body, and therefore in a line with the corresponding part of the opposite fore wing. This arrangement involves, in the great majority of Lepidoptera, a strained or unnatural appearance, owing to the fore wing being drawn so far forward—an effect which is sometimes increased by drawing

the hind wings backward so as to leave a considerable gap between them and the fore wings.

It has been already stated that there is no one British method, but a great variety, differing widely from each other and from the continental. The pins used are of British make and superior in stiffness to those supplied by the continental makers. There is no attempt at uniformity in length, but the size of the pin is regulated by that of the insect. The insect is pierced so that the pin slopes forward, but there is no uniform or standard slope; and, indeed, such a standard would be far more difficult to attain than under the continental method, in which the upright pin is required. Even the longest pins ( $1\frac{3}{8}$  inches) used are inferior in length to the continental pins. In the older collections set in England the insect was placed very low on the pin, so low in fact that the edges of the wings (hind margins), which were made to slope downwards, rested on the paper lining of the cabinet drawer. The obvious danger and injury involved in this position—the tendency to curl up—the ready accumulation of dust—the convenient access afforded to mites, etc.—the want of a space on the pin below the insect for the attachment of labels—gradually caused its abandonment; so that, in most modern English collections, the insects are fixed higher on the pin; but here again there is no standard, some collectors being satisfied if the insect be just clear of the bottom of the drawer, others raising it until only from  $\frac{3}{32}$  to  $\frac{1}{4}$  inch of pin projects above it, as in the continental method, others again adopting an intermediate position. The wings are set less forward than in the latter method, and care is exercised to preserve the natural amount of overlap of the fore over the hind wing. Instead of the flat setting the aim has been to make the wings slope downwards away from the body of the insect, and to increase the slight, natural curvature of the insect's wings. This is usually accomplished by curved setting-boards, but it has been brought about by means of cardboard slips placed *below* the central part of the wings, together with other slips *above* their outer part, the elasticity

of the wings keeping them in place. It has even been suggested that a curvature from back to front in addition to that from side to side would be peculiarly elegant, and collectors have been advised to make setting-boards out of portions cut from a sphere.

Apart from the relative advantages and disadvantages offered by these methods, the fact of the difference is much to be regretted. One of the most serious difficulties which have been brought about is the want of uniformity in the depth of the drawers of British and continental cabinets; and here, too, the want of a standard has produced inconvenient results within the limits of this country—the British cabinets varying from an effective depth from glass to paper of  $1\frac{1}{8}$  inches to one of  $1\frac{7}{32}$  inches, as against a depth of  $1\frac{1}{2}$  inches in the continental drawers. This is, of course, excessively inconvenient when any large exchange of specimens takes place. In fact, it is not too much to say that the uniformity of the continental method would render its adoption expedient even if it were less suitable in other respects. But a careful comparison of all the various points will show that in almost all points it is superior to the English method. I will take the various points separately.

*Choice of Pin.*—The largest English pin (No. 16 or No. 11, with a length of  $1\frac{3}{8}$  inches) is stiffer and more convenient than the continental article, and is sufficiently long to permit the advantages mentioned in the paragraph below. All insects, large and small, should be mounted so that they are at an equal distance from the glass.

*Height of Insect on the Pin.*—The immense advantages of a high position have been already mentioned: furthermore, it may be added that it is of advantage to bring the insect near to the glass, so that it can be examined with a lens without removing the cover. The high position also enables the observer to read two or three labels placed at different heights on the pin below the insect without disturbing them or the insect, and even without removing the cover of the

drawer. In these days of careful cataloguing, and full and accurate data, this abundant space for small labels is of the utmost importance. It should be noted that the proximity of the insects to the glass necessitates care in the removal of the covers, because of the injury to the wings which is apt to be caused by a sudden rush of air.

*Direction of the Pin.*—The upright position has the great advantage that it favours uniformity, which, on the other hand, is very difficult to secure over a wide area with the sloping position. The latter method, furthermore, tends to hide the labels on the pin, inasmuch as it brings them further under the body of the insect.

*Plane of the Wings.*—The flat position also favours uniformity, whereas the slope always tends to vary according to the taste of the collector. Another, and perhaps the chief, advantage is that the flat wings being at right angles to the line of vision are more clearly and distinctly seen. To see the sloping wings perfectly the insect must be turned first to one side and then to the other, and *both* sides cannot be seen perfectly at the same time. The flat continental boards do not, as a rule, produce perfect flatness because the wings are naturally curved a little, and this requires special correction. Mr. H. J. Elwes has devised boards, now much used in this country, which are curved slightly in the opposite direction, viz., upwards, and these are very effective in producing the desired flatness. The wings are usually held in place by strips of engineers' tracing cloth secured by the ordinary milliners' steel, glass-headed pins, which can be easily driven into soft wood.

*Forward direction of the Wings.*—Here, too, the continental method of placing the inner margin of the fore wings at right angles to the body has the great advantage of uniformity, and when the setting is performed mechanically, with no knowledge of or interest in the insects themselves, it would probably be the most expedient system to adopt. If, however, the setter has something of the feeling of a naturalist and artist, far more pleasing results may be obtained by placing

the wings in as natural a position as is consistent with their proper display, the latter being, of course, the paramount consideration. Some judgment will be necessary in dealing with insects of which the habits are unknown. I think it may be assumed that the natural amount of overlap—easily distinguished by the characteristic texture and appearance of that part of the hind wings which is naturally concealed—should always be retained.

The feeling in favour of this or that form of setting, apart from the considerations of utility, is largely, if not entirely, a question of fashion. As a boy I looked on the continental setting with horror; now the sight of the sloping wings in contact with the paper gives me a cold chill. It is probably the case that a very large number of our collectors are still strongly in favour of some form of the English method. To these I would urge the advantage of uniformity, and would point out that the method they still follow is disappearing with all possible speed. The British Museum, the Godman-Salvin Collection, Mr. Herbert Druce's Collection, and the Hope Collection are all being rapidly transformed in the direction I have indicated. The method was first shown on a large scale in this country in the fine collection of Mr. Elwes. Whatever our preferences may be, the question is being rapidly settled on grounds of expediency, and the sooner the change is effected the better it will be for everybody.

Before concluding I must say a few words about labelling. The most important fact is, of course, the locality, and this should be precise and exact: next in importance is the date of capture; next the name of captor; then the date of presentation and the name of donor. Of some interest for future workers is a statement as to the authorship of the manuscript label. As regards locality, at Oxford we make a point of printing the most important word first and in capitals; then follows the more minute locality and the height above the sea, if attainable. Examples of the labels

of specimens presented to the Hope Collection in 1897 are printed below:—

MEXICO  
Pacific Slope,  
Zavala Canton,  
12 m. S.W. Orizaba.  
Capt. Nov '96-May,  
1897 (dry season).  
Presented 1897 by  
Osbert H. Howarth.

HUDSON STRAIT.  
P. of Wales Sound,  
Lat. 65° 35' N.  
Long. 77° 22' W.  
Capt. July 23, 1898,  
and pres. 1897 by  
F. F. Payne.

CHICAGO, ILL.,  
50th Street,  
Waste Laid by  
I.C.R. Bridge.  
Capt. July 21, '97,  
and pres. 1897 by  
E. B. Ponton.

NR. DURBAN, NATAL,  
Malvern, 800 feet.  
Capt. March 30, 1897,  
and pres. 1897 by  
Guy A. K. Marshall,  
m.s. by G. A. K. M.

In the much rarer cases in which notes of experiments or of natural history observations accompany the specimens, these are incorporated in an epigrammatic form in the label. Examples are given below:—

NR. DURBAN, NATAL,  
Malvern, 800 feet.  
(see label)  
One of 15 *Marala*  
specimens and *Androcyba*  
all sent on fern  
1-2 p.m., June 18, '97.  
Capt. and pres. 1897  
by G. A. K. Marshall,  
m.s. by G. A. K. M.

NR. DURBAN, NATAL,  
Malvern, 800 feet.  
Figs. in moisture  
4 d. 10 h. Imago.  
Went April 10, 1897.  
and pres. 1897 by  
Guy A. K. Marshall,  
m.s. by G. A. K. M.

As regards date of capture the importance of the day of the month is at once seen in relation to the recent work upon seasonal forms and as giving a solid fact in the natural history of the species. Many excellent collectors neglect the date altogether. This is a serious error; for the study of the gradual changes in the distribution of forms will demand these very data from the specimens now being added to our Museums. To take a concrete case. *Hypolimnas misippus* has of late years invaded America, and the dates of its arrival and gradual spread are of very great interest. There is a Godman-Salvin specimen in the British Museum captured by Belt in the Montes Aureos, Maranhão, Brazil; but without a date. In this case, no doubt, the date can be fixed approximately by indirect means, although I have not as yet been able to ascertain it; but in many other cases it cannot be recovered. What a splendid history of the gradual spread of *Anosia plexippus* from its home in North America could be deciphered from our great collections if only the collectors had troubled to put dates on their captures. When labels are printed it is almost as easy to print two or three as one only. It is of great advantage to pin a second label *beside* the specimen where it can be read with the greatest ease, while



a third may be found useful for cataloguing. Diamond type will be found the most satisfactory for this purpose, while a small and simple press, which permits easy and rapid alteration of type, is the most convenient.

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MR. PLATNAUER asked if anything could be done to the pin to render it more difficult for the predaceous intruder to climb it. He also questioned the wisdom of putting labels, and especially the original or collector's label, on the pin under the insect. Not only did it make the collection more unsightly, but it exposed the label to the risk of sharing the fate of the specimen. He would suggest that the specimen bear a number only, and that this number refer to a catalogue which could contain full references, and into which the original label could be pasted. In this case, everything would not be lost at one blow; even if the specimen were destroyed, the reference would remain.

DR. PETRIE asked whether labels or pins could not be treated with protective substances such as white arsenic or corrosive sublimate and glycerine.

MR. POULTON said that the labels under the pin formed an excellent barrier against intruders. The use of strong antiseptic or protective substances, such as arsenic and corrosive sublimate, was objectionable on account of their tendency to make the pin brittle. The question of pins was important enough to constitute a separate subject for consideration; he himself knew of no satisfactory substitute for the pins ordinarily used by entomologists, although some authorities favoured platinum, some silver, and some steel pins. The best way to preserve Lepidoptera was to keep the drawers containing them thoroughly disinfected with a good antiseptic. Nothing was better adapted for this purpose than naphthalene. As to putting labels into a catalogue, the objection seemed to him that this exposed the collection to the risk of total loss of all references by one mishap. If the catalogue were lost or destroyed, *all* information with regard to the specimens would be gone, whereas, with separate labels on the specimens, there was not nearly the same chance of an extensive loss. He instanced the Burchell collection of South American Lepidoptera which was almost useless in consequence of the loss of its catalogue. [Since the above was written this catalogue has been recovered, but it is impossible at present to decide whether it is complete.—E. B. P., 1898.]

# ON THE ARRANGEMENT OF THE MINERAL COLLECTION IN THE UNIVERSITY MUSEUM, OXFORD.

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BY PROFESSOR H. A. MIERS, F.R.S.

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## (1) *THE GENERAL COLLECTION.*

THE University Mineral Collection, though small, contains several specimens of great interest. Chief among these are two meteorites—namely, that which fell at Limerick in 1813, and that which fell at Chandakpur in India in 1838. Of these the Limerick stone constitutes no less than four-fifths of the specimens of this fall at present existing in the various Museums of the world, and the Chandakpur stone three-fifths of the total amount known.

Very noteworthy are an Irish Gold Nugget raised in Wicklow in 1842, and weighing  $1\frac{3}{4}$  oz.; an unique specimen of Anhydrite in large crystals; three specimens of the rare didymium phosphate from Cornwall known as Rhabdophane, one of which is probably the largest mass known; a magnificent crystal of the very rare mineral Euclase; some fine Irish Beryls; and some beautiful Queensland Opals presented by my predecessor, Professor Maskelyne. Very remarkable also are a huge cleavage fragment of Iceland Spar, and a magnificent crystal of Gypsum from Utah, the latter presented by Professor Talmage. Both these are exhibited in the first vertical case.

The teaching collections are preserved in the laboratories, but the show collection is in table cases in the court of the Museum. Here I propose to carry out to the principle that every specimen which is worth exhibiting deserves to be

exhibited for some definite purpose, and that the purpose deserves to be indicated and explained by a label.

If a mineral specimen is a fine or a typical example of the species it should be exhibited in the systematic series; if it is interesting for other reasons, such as its associations, or its structure, or its uses in the arts, it should be exhibited with the special object of emphasising these points of interest. If it illustrates chiefly a point of educational value it may be placed in the teaching collection. The ceaseless multiplication of duplicates, however fine, is most inadvisable, at any rate in a University Museum, and a few specimens well labelled and described are, in my opinion, far preferable to a crowd of unexplained show-specimens.

In the systematic series of this Museum every specimen will ultimately have a label indicating the various minerals which are conspicuous upon it, and also the manner in which the specimen occurs in Nature.

The Oxford Collection is sufficiently small to render the task of re-arrangement a comparatively light one, and I have been able in a short time to express these views in a practical manner by setting out the best part of the collection in accordance with them. Firstly, as regards systematic classification:—

Although the minerals are not yet fully exhibited, and at present very incompletely labelled, sufficient progress has been made during the last year to enable a visitor to understand the classification which has been adopted.

The collection has been completely re-arranged in the first eight table cases according to the following system:—

Meteorites, - - - Case 1, Panel A.

*The Eighteen Classes of Minerals.*

Class	I.—Elements,	-	-	-	Case 1.
Class	II.—Haloids,	-	-	-	Case 1.
Class	III.—Sulphides, &c.,	-	-	-	Case 2.
Class	IV.—Sulph-arsenites, &c.,	-	-	-	Case 2.
Class	V.—Oxides,	-	-	-	Cases 3 and 4.

Class	VI.—Hydrates,	-	-	-	Case 4.
Class	VII.—Aluminates, &c.,	-	-	-	Case 4.
Class	VIII.—Borates,	-	-	-	Case 4.
Class	IX.—Carbonates,	-	-	-	Cases 4 and 5.
Class	X.—Silicates, &c.,	-	-	-	Cases 5 to 7.
Class	XI.—Nitrates,	-	-	-	Case 8.
Class	XII.—Phosphates, &c.,	-	-	-	Case 8.
Class	XIII.—Niobates and Tantalates,				Case 8.
Class	XIV.—Sulphates,	-	-	-	Case 8.
Class	XV.—Chromates,	-	-	-	Case 8.
Class	XVI.—Molybdates, &c.,	-	-	-	Case 8.
Class	XVII.—Uranates,	-	-	-	Case 8.
Class	XVIII.—Organic Compounds,	-	-	-	Case 8.

So far the arrangement into classes is a purely chemical one, and does not differ very materially from that adopted elsewhere.

The real difficulty of classification is encountered when the Museum curator has to decide where to place the various species within each class. Many different systems have been proposed, but mostly fail to secure general acceptance, because they are so largely based upon theoretical considerations.

Among the sulphates, for example, are we to divide the class, as is done by most authors, into anhydrous and hydrated salts, and each of these again into normal, acid and basic compounds? And if such a system can be adopted for the sulphates, is it equally applicable to the other classes?

It will be obvious to anyone who knows anything of minerals that such a system is not only difficult to apply in most of the classes, but is absolutely speculative in the class of silicates which contains about one-half of the known mineral species.

Although both Groth, whose system is perhaps most widely used in Museums, and Dana, whose Treatise is the universal book of reference, begin by dividing the silicates into anhydrous and hydrated, and by sub-dividing them into ortho-silicates, meta-silicates, and poly-silicates; it is really impossible to say in the present state of our knowledge, what is the actual constitution of any of the natural silicates. It is not even

known how much of the water which they give off when heated is to be regarded as water of constitution and how much as water of crystallisation, and yet it is the presence of the latter which is supposed to place the mineral among the hydrated silicates; again, according to some authors, they may be all ortho-silicates. And so it happens that every fresh discovery concerning the chemical composition of a mineral, or any new view concerning its constitution, may transfer it from its present place in a collection to some widely distant position in the scheme of classification.

There are two main features which every Museum curator would attempt to retain whatever system he might adopt. In the first place, it is necessary to keep together all the minerals which constitute an obvious mineralogical group—all the garnets, for instance, or all the feldspars, or all the pyroxenes, however widely they may differ in composition. Such groups are natural groups, and are always kept intact, although if the usual systems of classifications were rigidly adhered to, they would have to be sub-divided and their members widely separated.

In the second place, it is necessary to keep together all the minerals which constitute an isomorphous group—that is to say, those minerals which possess both similarity of chemical composition and crystalline form. Thus, for example, Class IV. must include, beside the sulph-arsenites, the corresponding sulph-antimonites and sulpho-bismuthites, which are isomorphous with them. For the same reason the arsenates and vanadates cannot be separated from the phosphates, but must be included with them in Class XII.; the ferrates are with the aluminates, and the titanates are with the silicates.

In the classification of the Oxford Collection, I have endeavoured to retain these two essential features without introducing any hypothetical considerations whatever, and to base the sub-division of each class upon observed facts, about which there can be no difference of opinion. It should thus be possible to say without difficulty to which sub-division any given mineral is to be referred. Take, for example, the

silicates—the most difficult of all the classes. These naturally fall into two main divisions: some are silicates of iron, magnesium, &c., like Olivine, Augite, Talc, or Serpentine; others are alumo-silicates, like Felspar, Garnet, or Mica.

Thus we have—

Section I.—Silicates of divalent elements.

Section II.—Silicates of trivalent elements.

Now, among the latter, some, like clay, are simple silicates of aluminium; some, like Leucite ( $\text{KAlSi}_2\text{O}_6$ ), are alumo-silicates of an alkali; some, like Garnet ( $\text{Ca}_3\text{Al}_2\text{Si}_3\text{O}_{12}$ ), are alumo-silicates of a divalent element; and the remainder, like an ordinary Plagioclase Felspar (silicate of sodium and calcium), are alumo-silicates of both.

These four types provide four sub-divisions of Section II. The chief difficulty in any system occurs with such a group as Pyroxene. Everyone is agreed that the three minerals, Diopside ( $\text{Ca Mg Si}_2\text{O}_6$ ), Spodumene ( $\text{Li Al Si}_2\text{O}_6$ ), and Augite ( $\text{Ca Mg Si}_2\text{O}_6 + m \text{ Mg Al}_2\text{SiO}_6$ ), belong to the Pyroxene Group, and must be kept together, and yet the first appears to be an ortho-silicate of divalent elements, the second an alumo-silicate of an alkali, and the third some other silicate. Where then is the whole group to be placed?

According to my scheme each such group must be considered as a whole, and is not to be classified according to any one of its members. Now, a distinguishing feature of the Pyroxene Group, as a whole, is that it is not essentially a silicate of trivalent elements, but belongs to the type  $\text{R}'_2\text{Si}_2\text{O}_6$ , and accordingly is to be placed in Section I. It is true that some members of the group may contain trivalent elements, such as aluminium and iron, because, for example, a trivalent and a monovalent element together may replace two atoms of a divalent element, so that Spodumene corresponds to Diopside, but the trivalent elements are certainly not essential, since a mineral may be a Pyroxene without their presence. Again, in the Felspar Group, the soda felspar ( $\text{Na Al Si}_3\text{O}_8$ ) appears to be a polysilicate of an alkali, while the lime felspar

( $\text{Ca Al}_2 \text{Si}_2 \text{O}_8$ ) appears to be an orthosilicate of a divalent element. But according to my classification, whether the Felspars be orthosilicates or polysilicates is immaterial (it is also uncertain), and the essential feature of the group consists in the fact that its members are all alumo-silicates, and *either* of monovalent or of divalent elements. It must, therefore, be placed in the corresponding division of Section II. Hence, finally, the arrangement of the silicates is as follows:—

Section I. Trivalent elements not essential—

*e.g.*, Talc, Augite.

Section II. Trivalent elements essential.

Division (1) Silicates of trivalent elements alone—

*e.g.*, Topaz, Kaolin.

„ (2) Silicates of trivalent with monovalent elements—

*e.g.*, Leucite, Nepheline.

„ (3) Silicates of trivalent with mono- and di-valent elements—

*e.g.*, Felspar, Mica, Tourmaline.

„ (4) Silicates of trivalent with divalent elements—

*e.g.*, Garnet, Beryl.

Division (1) may be called the aluminic silicates.

„ (2) „ „ alkaline „

„ (3) „ „ intermediate „

Of course the position of any mineral in the collection depends upon whether it is referred to a certain mineral group. Thus natrolite ( $\text{Na}_2 \text{Al}_2 \text{Si}_3 \text{O}_{10} + 2\text{H}_2 \text{O}$ ) considered by itself would fall among the alkaline alumo-silicates; but it is generally referred to the group of the zeolites, and if that group be retained as it is in the Oxford collection it will come among the intermediate silicates as containing alumo-silicates both of alkalies and of divalent elements.

Any other class, such as the sulphates, is divided in a similar manner; but, whereas there happen to be no silicates of alkalies among minerals except alumo-silicates, which therefore go into

Section B, we have in any other class to distinguish between salts of alkalies and salts of divalent elements.

Thus, finally, the division of any of the principal classes, including Class X. (silicates), is into the following four sections:—

*The Sub-divisions of each Mineral Class.*

Section A.—Mono-valent elements essential.

„ B.—Divalent „ „

(1) Divalent elements alone.

(2) Di- with mono-valent elements.

„ C.—Trivalent elements essential.

(1) Trivalent elements alone.

(2) Tri- with mono-valent elements.

(3) Tri- with mono- and di-valent elements.

(4) Tri- with di-valent elements.

„ D.—Double Salts.

Any further sub-division is more or less arbitrary, or is based upon speculation.

In the Oxford collection each set of minerals brought together under (1) or (2) or (3) or (4) is arranged, so far as possible, in the following order:—

(a) Acid Salts.

(b) Normal „

(c) Basic „

And each of these can, if desired, be further distinguished as anhydrous and hydrated.

Thus, finally, the curator of a mineral collection is enabled without difficulty to find its place in the system for any species, old or new, without resort to speculation.

It may be advisable to add, for the sake of those who are more familiar with zoological and botanical classifications, that in mineralogy we are not concerned with the distinction of orders, genera, and species, but with a certain number of well-defined minerals, which we call species, which shade into



one another by intermixture. Those minerals which are capable of intermixture constituting what I have called a group; but much of the difficulty of classification results from the existence of minerals, which are clearly such mixtures though their components are unknown.

For many practical purposes it is convenient to class minerals together by their bases; to bring together into one place the compounds of zinc, in another those of copper, and so on. Such an arrangement is only advisable, in reality, for the common ores from which metals are extracted. It will be illustrated, so far as is necessary, in the second of the three introductory cases with which the collection begins; and I am now led to say a few words about these.

## (2) *THE INTRODUCTORY CASES.*

The first case illustrates the "characters of minerals," and I have been at pains, not to indicate the great variety of characters frequently employed by mineralogists, but rather to show that the essential characters by which a mineral species is defined and identified are very few in number, and that the remainder, while they may give to different specimens of the same mineral a great diversity of aspect, are really inessential.

The first panel begins with an illustration of the differences of aspect which may be presented by specimens of one mineral (Quartz), and then illustrates the following essential characters:—Hardness; lustre; crystalline form and structure (cleavage and double refraction); cohesion; specific gravity (illustrated by quartz floating and garnet sunk in a heavy liquid); chemical composition.

The remaining two panels illustrate the diversities of aspect which may result from differences of "habit," aggregation, colour, &c., and show, in particular, how the colour of a mineral may be due to very different causes. This case serves to illustrate most of the technical terms in current use by mineralogists.

The second case is being arranged to illustrate (1) the growth and general features of crystals; (2) the various modes in which

minerals occur in nature ; e.g., Amygdaloids, Veins, Geodes, and, in particular, the modes of occurrence of Gold and Diamond.

The third case contains the altered minerals or "pseudo-morphs," and following these are examples of the uses and applications of minerals.

The latter are arranged to show (1) various minerals of which direct use is made, such as Asbestos and Mica ; (2) the ores from which the metals are extracted, and it is here that the more important compounds of each metal will be found together ; (3) the minerals used for ornamental purposes, and as gem stones.

### (3) *A CASE ILLUSTRATING CRYSTALLOGRAPHY.*

The upright case (No. 10) will ultimately contain a series of specimens and models illustrating the principles of crystallography. Although incomplete it is worthy of notice, as already containing a series of models descriptive of the thirty-two possible varieties of crystal symmetry, unlike anything which has been made before, so far as I am aware. These models, which we have constructed in the Department, are made of rubber balls and wire, and each serves to explain the symmetry of the wooden model which it accompanies. The planes of symmetry of the model are indicated by circles painted on the ball, and the axes of symmetry by wires, each bearing a card index denoting its order.

This series of models is intended to come as a summary at the close of the models and specimens which will illustrate the principles of crystallography.

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MR. RUDLER spoke in high praise of the classification that had just been put before the meeting, and characterised as a carefully thought-out and thoroughly philosophical scheme. But the plan of classification adopted in any Museum should be one adapted to the requirements of those who used the Museum. Professor Miers' scheme was essentially a University scheme, it was one that would be helpful to the student, but almost useless to the miner. The latter would prefer a collection in which the minerals were grouped with some reference to the metals contained in them. For instance,

he would find it more convenient to have all copper-containing minerals together, than to have to look among oxides for some, among sulphides for others, and among carbonates for a third group.

MR. PLATNAUER commended Professor Miers' division of minerals into "natural" groups. It facilitated the work of the learner by connecting together minerals which had a large number of characteristics in common, while a strict adherence to a purely chemical classification often led to the separation of closely allied minerals. He considered, however, that Professor Miers had not shown sufficient reason for superseding the ordinary axial division of crystals into six systems. He hoped that at some future time the writer of the paper would put his crystallographic scheme before the Association in a clear and simple form.

DR. WOODWARD called attention to Mr. Fletcher's introductory cases in the British Museum and the guide-books explanatory of them. These he considered to be models of accurate information conveyed in simple and intelligible language.

## REMARKS CONCERNING THE OCCURRENCE OF HUGE SELENITE CRYSTALS IN UTAH, U.S.A.

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BY DR. J. E. TALMAGE, F.R.S.E., F.G.S.

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[In the course of his address the speaker exhibited a number of stereoscopic photographs, and further illustrated the subject by the use of lantern projections. The address was not written.]

**T**HERE may appear to be small excuse for presenting such a subject before a gathering of museum officers; and, in truth, it has little to do with the arrangement and display of specimens on shelves, or with the many other important topics relating to museum work, to the able treatment of which we have listened with such pleasure and profit during these meetings. I invite you simply to glance into one of the well filled cabinets in Nature's own museum. The Utah selenite has proved of some interest from the somewhat unusual conditions of its occurrence and the individual characteristics of the crystals.

Well formed so-called perfect crystals are by no means rare in the mineral world; very large crystals have been found among many mineral species; but crystals which are at once of approximately perfect form and of huge size are rarely met with in nature. The fact that a number of selenite crystals from Utah have found their way into British and other European collections may lend some special interest to a brief description of the occurrence.

Already about forty tons of huge crystals and crystal groups have been taken from a single deposit in Southern Utah. The work of removal, transportation, and subsequent distribution of

widely recognised, that brewers in other districts "burtonized" their water, *i.e.*, rendered it hard by allowing it to dissolve powdered gypsum.

DR. TALMAGE said that cleavage fragments of selenite had been found in the cliff dwellings, together with bariscite ornaments, but that the use to which the former had been put had not been discovered. The reasons for the slight amount of denudation of the soft selenite as compared with that of the hard sandstones around were as follows:— In the first place its very softness, combined with its toughness, preserves. The region in which it is found is arid; but little rain falls, and that little falls in a short time. Hence, erosion is chiefly effected by wind-driven sand, a denuding agent which works much more effectually on hard rocks than on soft tough ones. In the next place, selenite is less affected by sudden changes of temperature than is sandstone. A range of 80° F. within twenty-four hours is a matter of common occurrence in that district. This produces rapid disintegration of the sandstone, but has comparatively little effect on the selenite.

## NOTES ON THE ARRANGEMENT OF THE PITT-RIVERS MUSEUM.

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BY HENRY BALFOUR, M.A., Curator.

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THIS Museum forms what is practically the Ethnographical Department of the Oxford University Museum. The nucleus around which it has developed is the splendid collection formed by General Pitt Rivers, and presented by him to the University several years ago. Not only do we owe the collection itself to that indefatigable anthropologist, but also the system of classification and arrangement which forms its special and distinctive feature.

In most, if not all, Ethnological Museums a *geographical* classification is adopted as the principal basis of arrangement, whereby all objects from the same region are grouped together—a system obviously advantageous from many points of view, and especially to students of comparative ethnology, as showing at a glance the condition of culture to be found in any tribe, race, or district. In the Pitt-Rivers Museum, on the other hand, the primary basis of classification which is adopted, and which distinguishes it from other kindred Museums, is one akin to that employed in the arrangement of most Natural History Museums, the objects being grouped according to their, as it were, morphological affinities and resemblances, all objects of like form and function being brought together into groups, which again are sub-divided into smaller groups, into genera and species, as one might almost say.

When General Pitt Rivers (then Colonel Lane Fox) began to form his Ethnographical Collection about the year 1851, he

was actuated by the desire to illustrate either actually or hypothetically what I may call the Natural History and Phylogeny of the various arts and industries of mankind. To this end he, so far as possible, associated into groups all like objects from the various parts of the world in which they occur. By means of such synoptic series, when fairly representative, the *geographical distribution* of any class of implements, weapons, etc., may be seen, and the relative condition and local variations of kindred or similar objects may be studied, and views formed as to the important question of the *monogenesis* or *polygenesis* of certain widely distributed arts; also their probable lines of dispersal where they have apparently emanated from one centre, incidentally, of course, helping to throw light upon the migrations of races themselves.

Moreover, by arranging the specimens in each group in progressive series, that is by commencing with those objects which appear to be the most *primitive* and generalised of their class, and leading gradually up to the higher and more specialised forms, the developmental history of the higher forms may be, at anyrate suggestively, illustrated, and material be supplied for the study of the growth of culture. We are enabled to form some conclusions as to the variations by which progress in any given art or industry has step by step been effected.

The greater part of the collection consists partly of ethnographical material, specimens collected particularly from the more primitive living races—savage and barbaric races so-called—and partly of archæological material, specimens of objects made and used by pre-historic and proto-historic man. In addition, there are included a number of objects belonging to higher civilisations and modern times, but chiefly such types as have, for various reasons, persisted in a more or less primitive and unchanged form from ancient down to modern times, in spite of general advances in culture. These *survivals* form a very important class of material, and it is, in fact, when regarded in the light of survivals from early stages of culture-development, that the modern savage races become most interesting to the

student of evolution in arts and customs. There can be little question that in the various races of modern savage and barbaric peoples, we have instances of *survival* from early conditions of culture, as also of physical development; that many of these races are, in fact, not only *low* in the culture scale, but also essentially *primitive*; that their upward progress has from various causes been arrested or retarded, and that they have thus dropped behind in the general advance towards civilisation. If we are right in thus regarding modern lowly-cultured races as survivals for the most part from early stages in the general phylogeny, and as to some extent representing the condition of pre-historic man, it becomes clear that the study of modern primitive races is of great importance to the archæologist, as many of the missing links in the records of the past may be supplied by a study of survivals in the present, and the importance of combining archæological with ethnological study becomes manifest.

In view of this the archæological material is placed side by side with the ethnological material, in order that the one may help to explain the other, and that each may play its part in developing a continuity of evidence. It was to this end that General Pitt Rivers added to his ethnological collection a very fairly representative series illustrating the weapons, implements, etc., of the Stone, Bronze, and Early Iron Ages.

Of course, as is the case in most Museums, the limitations of space, and the still greater limitations of funds, prevent the general and ideal scheme from being fully carried out, and much must of necessity remain undone, or at the best be done but imperfectly.

Where possible and desirable, maps are added to the series to illustrate at a glance the geographical distribution of particular arts or appliances, and, where necessary, explanatory sketches and photographs are also added. It is hoped gradually to bring the system of labelling into as complete a state as possible, so as to bring the Museum into a state of efficiency both for purposes of scientific study and for the general instruction of the public.



Although the main system of arrangement adopted is one based upon a classification of objects according to their form and function, in the case of certain special series a departure is made from that general system for particular reasons. Such, for example, is the case with the objects collected during the voyages of Captain Cook. These are kept together as being interesting not only as a memorial of the great navigator, but also as to some extent illustrating the condition of indigenous culture of certain savage races before the advent of the white man. Special finds, which serve to illustrate particular points, are also usually kept together, instead of their component objects being distributed into the various series to which they would belong under the main scheme of arrangement.

## ON THE ARRANGEMENT OF ETHNOGRAPHICAL COLLECTIONS.

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BY F. W. RUDLER, F.G.S.

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IT is usually found to be a cheap way of casting ridicule upon a Museum to say that it exhibits a few clubs or paddles from the South Sea Islands. Yet I must confess that I fail to understand why the mention of such objects should raise a smile, or why more ridicule should be attached to their exhibition than to the display of many other objects which are considered perfectly legitimate in a Museum. Provided that the weapon or the implement be properly labelled, it is an object of distinct educational value. Whether it conveys much or little information to the visitor depends to a large extent upon the curator. Almost any object, commonly designated as a mere "curiosity," may assume more or less importance educationally, if only trouble be taken to find out its history, and to tell that history clearly on a label. Let the locality from which the object comes, the people by whom it is used, the method of its manufacture, the mode in which it is employed—in brief, let as much suitable information as is obtainable be concisely given on the ticket, and the object becomes forthwith invested with an interest which lifts it out of the rank of uninteresting and useless "curios."

It must be acknowledged, however, that isolated specimens of any kind rarely serve any very useful purpose in a Museum. It is not until specimens become associated in series that their real value declares itself. So far as ethnological objects are concerned, it is not generally difficult to obtain a collection,

more or less extensive, though never complete; and assuming that a curator finds himself in possession of such a collection, he will naturally desire to know how he can best arrange it, so as to bring out the relationship of the various elements of the collection, and render the whole of substantial educational utility. It seems to me peculiarly appropriate that such a subject should be discussed at the present meeting, inasmuch as Oxford possesses, in the magnificent Pitt-Rivers Museum, a collection which the distinguished donor brought together and classified on an entirely original system, whilst the enlightened policy of the University has led to the foundation of the only Chair of Anthropology in Britain—a chair which is fortunately occupied by our highest authority on ethnological matters. Under the shadow of these influences a discussion on ethnographical collections may surely be profitably undertaken; and the object of my brief communication—a communication quite inadequate to the importance of the subject—is simply to initiate such a discussion.

The first method of classification which naturally suggests itself is to sort out the objects and to place together all those of a like character. All the clubs, for example, from various parts of the world, might be placed side by side; and by extending this method we should form a department of comparative ethnography. Just as in a Museum of comparative anatomy we might arrange a series of preparations representing homologous and analogous structures, so in a Museum of comparative ethnography we might arrange various series of corresponding objects having similar uses among different peoples; thus the pottery, or the textile fabrics, or the fire-producing appliances of different countries, would be brought into juxtaposition, and be compared and contrasted with each other in relation to form and function.

Such a method of arrangement is, to some extent, adopted in the grand Ethnographical Collections under the able care of Mr. Henry Balfour. Respecting the fundamental system on which General Pitt Rivers arranged his collection it would be presumptuous

tuous for me to speak in Mr. Balfour's presence. The preface which the General wrote to the catalogue of part of his collection when it was first exhibited in London, more than twenty years ago, sufficiently explains the general system which he then had in view.\* I am anxious to elicit from curators an opinion as to whether they feel, after having seen this collection, that they can advantageously follow such a system in arranging small provincial Museums.

General Pitt Rivers's original scheme was to display his specimens in carefully arranged sequence, so as to show the transition from one form of object to another, and thus to trace the succession of ideas whereby man had advanced in the evolution of the arts of life. Professor E. B. Tylor, with his accustomed felicity of expression, has termed the collection "a set of object-lessons in the development of culture." Valuable as such a method unquestionably is, it seems to me that most curators are hardly likely to have at their command such resources as are needful for the successful imitation of this philosophical arrangement. At the same time where sufficient material of a suitable character exists, it would undoubtedly be well to supplement the collections on a geographical basis by a small department arranged sociologically. It is to be much regretted that in London we have no means for comparing the two systems.

An obvious and simple method of classification consists in

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\* "Catalogue of the Anthropological Collection lent by Colonel Lane Fox for exhibition in the Bethnal Green Branch of the South Kensington Museum," 1877. For a fuller description see his paper "On the Principles of Classification adopted in the Arrangement of his Anthropological Collection now Exhibited in the Bethnal Green Museum." *Journal of the Anthropological Institute*, vol. iv., 1875, p. 293. This paper was read by Colonel Lane Fox at a special meeting of the Institute held at the Bethnal Green Museum on July 1, 1874, on the occasion of the opening of the Collection to the public. See also a paper on "Typological Museums, as Exemplified by the Pitt-Rivers Museum at Oxford, and his Provincial Museum at Farnham, Dorset." By Lieut.-General Pitt Rivers, D.C.L., F.R.S., F.S.A. *Journal of the Society of Arts*, Dec. 18, 1891. (The author's change of name was made in 1880.)

bringing together all the products of a particular people, so as to illustrate the life of each type of mankind. All objects of Chinese workmanship, for example, may be associated so as to illustrate the arts of the people. Where several races co-exist in a locality, this ethnological classification will evidently be not quite the same as a geographical classification. Of all systems the geographical seems the simplest, and is doubtless that which is likely to be followed in most Museums.

It is a geographical method which has been primarily followed in arranging the magnificent collections in the Ethnographical Galleries of the British Museum, now under the able curatorship of Mr. C. H. Read. By the incorporation of the famous Christy Collection, by the absorption of other collections, such as that of the London Missionary Society, and by many acquisitions from generous donors, like the late Sir Wollaston Franks, the Ethnographical Collections in Bloomsbury have, in recent years, acquired an unrivalled importance. The curators of provincial Museums will, therefore, naturally turn to them as a model to be imitated as far as local circumstances permit.

Let us suppose that a curator is anxious to arrange a case illustrating the ethnography of a particular locality, how can he best proceed so as to make it at once popular and educational? It seems to me the first thing is to clearly indicate the locality in question on a small map. The free use of such maps is of more assistance to casual visitors than scientific curators realise. People naturally like to know precisely from whence a given object comes. Probably everyone will admit that if we exhibit obsidian spear-heads from the Admiralty Islands, or armour of cocoa-nut fibre from the Kingsmill Islands, it will be well to direct the visitors' attention to these localities by means of coloured spots on a map; but it may be deemed quite unnecessary to place a map by the side of a piece of Maori work, since everybody is supposed to be familiar with the position of so well known a locality as New Zealand. My own experience, however, leads me to think that curators will rarely err if they assume the grossest

ignorance on the part of many of their visitors, and offer them assistance in even the most elementary matters. I am convinced that the most liberal use should everywhere be made of maps.

Having defined the locality, we proceed to represent the physical characters of the inhabitants; and this we can best do by means of photographs or of prints from process-blocks. Such progress has been made of late years in book-illustration that we need rarely resort to those old engravings in which the draughtsman often bestowed upon a savage the familiar face of a European. The camera has altered all that. Curators will do well to systematically cut out, preserve, and classify for reference those ethnological illustrations which so often appear nowadays in our best papers, such as *The Illustrated London News* and *The Graphic*. A copy of a good modern anthropological work, like Rāthsel's *Völkerkunde* or Mr. Butler's translation, may also be occasionally sacrificed with advantage, and the engravings cheaply and efficiently mounted under covers of glass, which may be conveniently bound round with the gummed tape that has lately come into the market.

The physical characters of a people can rarely be illustrated in any other way than by photographs and engravings. When the Crystal Palace was founded an attempt was made under that remarkable man, Dr. Gordon Latham, to illustrate certain types of mankind by means of life-sized coloured models; but such an experiment has been rarely repeated in this country.\* If we occasionally see in a Museum the figure of a Japanese warrior clad in armour, or an Eskimo enveloped in sealskin, it is the dress rather than the man that engages attention. Skulls and skeletons, and such preparations as we expect to find in a gallery of physical anthropology, can rarely be introduced with advantage in a popular ethnographical Museum.

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\* The representations of the human figure in the United States National Museum are noticed in the late Dr. Brown Goode's Report for 1893, in the Smithsonian Report published in 1895.

The most careless visitor, however, is usually attracted by anything which has about it a slightly sensational character, such as an Egyptian or a Peruvian mummy, or the tattooed head of a Maori, or the shrivelled head, with sewn-up lips, of some of the Indians of Ecuador.

Articles of dress and ornament often form the largest and most attractive part of an ethnographical collection; and here it is always well to bear in mind that it is not sufficient to exhibit merely the object, but the *use* of the thing exhibited should be shown as far as possible by means of sketches, photographs, or engravings. Models of dwellings, boats, &c., may sometimes be procured; but in their absence the objects must be represented pictorially. The domestic arts are readily illustrated by specimens of pottery, metal work, textile fabrics, &c.; and the curator, on receiving such objects as presentations, should seek as much information as possible respecting their manufacture and uses, so as to be able to prepare interesting explanatory labels. Even common objects are sometimes quite misunderstood.

Objects of ethnological interest vary so much in size, in shape, and in other characters, that it is by no means easy to display them advantageously in ordinary glass cases. Weapons used in warfare and in hunting always figure largely in ethnographical collections, and have generally to be mounted on screens or on framed panels, as is admirably done in the Pitt-Rivers Museum, though it must be remembered that in a Town Museum such exposed exhibits are readily attacked by that arch foe of the curator—dust. In the heart of a dense centre of population it is almost imperative to protect everything under glass. With reference to weapons and implements, it usually happens that too little explanation accompanies them; and their interest to the public would be greatly enhanced if their method of use were explained on a descriptive label, or, still better, illustrated by a picture. As a curator can hardly be omniscient, notwithstanding the popular notion to the contrary, he must usually depend upon the donor for information; but what is thus obtained is too often of an inexact character. It rarely happens

that a Museum has at its head an accomplished traveller like Dr. H. O. Forbes, who can write descriptions with scientific accuracy from personal observation.

The recent Jubilee festivities have enabled us to realise in a singularly impressive manner the magnitude of the British Empire, and our consequent duty of studying the many peoples with whom we are brought into social and political contact. Ethnology is a study which ought to be peculiarly favoured in Britain. With colonies in every quarter of the globe, and with world-wide commercial relations, we possess special facilities for forming ethnographical collections ; and curators would do well to take advantage of these facilities before it is too late. The rapid spread of civilisation renders it increasingly difficult year by year to obtain genuine specimens of native manufactures. Moreover, the profound changes brought about by the missionary, the merchant, and the miner will soon make it difficult to acquire accurate information respecting the use of many objects of ethnological interest treasured in our Museums. Curators of a future age desiring to form ethnographical collections, or to describe the objects in their custody, may find their task beset with difficulties unknown to us at the present day. It seems, therefore, well that the Museums Association should call attention to the subject before the opportunities are lost, and should impress upon curators the desirability of securing old specimens of genuine native work for preservation in our educational institutions, rather than let them pass into the hands of those who, without scientific knowledge, fail to appreciate their value, and may use them to no better purpose than to decorate a hall or garnish the walls of a billiard-room.

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MR. BALFOUR said that the day of the "curiosity shop" museum was over. Not arrangement only, but classification or arrangement on definite lines was expected. But the scheme of arrangement adopted in any museum must depend on the material in hand. Every museum should have, at least, *one* strong point. The line along which a museum develops depends mainly on the material



first obtained. He could see no reason why a small museum should not adopt the classification of the Pitt-Rivers collection. The objection urged on the score of insufficient material seemed to him to apply equally against the geographical system. In the splendid collections in Washington both schemes were adopted. It was a pity that the British Museum did not follow this excellent example. He himself did not share in the prejudice against sensational or even gruesome exhibitions; he believed that they did good by arresting the attention of casual visitors.

PROFESSOR GARDINER said that these questions of arrangement had been very carefully studied in the department of Classical Archæology. In that department it was found that, with a few originals as nucleus, a useful and instructive collection could be made with casts. These were, in fact, essential where cross arrangement was necessary, and the same specimen was therefore wanted in two different series. Photographs were also very useful in cases where neither originals nor casts could be obtained.

DR. PETRIE doubted whether in any department of knowledge a universally applicable scheme could be found. It was well that different museums should arrange their collections from different standpoints, and particularly that they should arrange with a view to the needs of their visitors. Thus, at Jermyn Street a practical classification was adopted with the minerals for the benefit of mining students, while in the British Museum a more purely theoretical scheme was adopted for the general student of mineralogy.

MR. RUDLER considered that in small museums the geographical plan should dominate, but where there was sufficient material the sociological (as he preferred calling the plan adopted by General Pitt Rivers) might well be used in small subordinate series.

## POPULAR MUSEUM EXHIBITS.

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BY HARLAN J. SMITH, American Museum of Natural History, New York.

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MUSEUMS which receive support from public taxes are naturally under obligation to make popular exhibits of interest to the masses from whom much of the tax money comes. When such popular exhibits can be made, without detracting from the scientific value and use of the specimens, it is eminently desirable.

During the past year I have planned several exhibits which were intended to be popular. It was desired that they should secure and hold the attention of the most casual visitor, and, having gained his notice, be more or less instructive to him; while at the same time retaining all the scientific usefulness of the specimens.

The label of one of these reads as follows:—

Skeleton as found in a grave, 3 feet from the surface, near the centre of a burial mound on the Fox Farm, May's Lick, Mason Mound, Kentucky.

The photograph on the left shows the grave before the five stones covering it were removed. The one on the right shows the skeleton in the grave after the removal of the earth surrounding the bones.

The seven shells near the skull are a species of *Olivella* from the Atlantic coast. The other shells are portions of fresh-water clams.

Am. Mus. Nat. History,  
Expedition of 1895.

This skeleton was placed upon a plaster paris bed in the exact position in which it was found by means of measurements

and photographs. The bones are fastened in such a way that any one of them may be removed for examination or study. The plaster bed, which is on a neat mahogany pedestal, is covered by a preparation of soil, so as to resemble a freshly excavated portion of the mound. By consulting the photographs, which accompany the label, the visitor may test the accuracy and truthfulness with which the exhibit follows the original discovery, thus being able to eliminate any personal error of the preparator which may be present or imagined.

A little street urchin, looking at this exhibit, was heard to remark—"We all got dem things inside o' us." She caught the anatomical information and taught it to her companion, while she overlooked the main feature—that of reproducing a special mode of mound burial; yet the exhibit served to teach, and so fulfilled the purpose of its originator.

A second exhibit of popular interest is that of which the label reads:—

Model of Altar Mound, 11 Squire's Map, North Fork Works,  
Ross County, Ohio.

The mound is represented as a little over half explored.

The altar basin was scraped in the ground, walled up with a little ridge of earth, and around it the bodies to be buried were placed. The mound was then built in layers covering all.

Offerings of the valuables of the builders, such as pearl beads, objects of copper from the distant veins near Lake Superior fine implements of obsidian from the far west, and beautifully-carved pipes were often burned upon these altars. The fire baked the clay for some distance around the altar basin.

Horizontal scale,  $\frac{1}{2}$  inch = 1 foot.

Vertical scale, 1 inch = 1 foot.

The model was made in clay and cast in plaster of paris, although papier maché would have served as well or better. The grass, on the portion of the mound not reached by the excavation at the stage of exploration shown by the model, is represented by green paint, upon which, before dry, was dusted various shades of green felt dust. The dirt removed from the excavation is shown thrown to the rear in heaps, while the method of

excavation is illustrated by the vertical cut across the mound. The skeletons are drawn, in the positions in which they were found, by thick yellow paint, applied so that they lie well up in relief.

Accompanying this model is Squire's map, showing the exact location and surroundings of the original, while photographs of the mound complete its graphic representation.

Synoptical exhibits often interest and instruct, while a long series of similar objects tires the general visitor and interests only the special student. The proportion of general visitors to special students in this Museum is about five hundred to one.

(Mr. Smith further illustrated his conception of popular Museum display by reference to his method of exhibiting and illustrating the use of hand hammer stones and grooved stone axes, and concluded as follows :—)

Common-sense business men frequently look upon Museums as harmless, but useless, institutions, hence their money is not so freely given for Museum support as for the maintenance of schools and libraries. This is not always the fault of the business men, but often of the Museum administrator, who is too, so-called, scientific to arrange attractively, to avoid huge unintelligible names, and provide descriptive labels so eloquent in simplicity and clearness that they may attract the newsboy and the bootblack. When the Museums make themselves as useful as the schools and libraries, which have been called the forts and outposts of civilisation and good government, then the business man will be as interested in them as in the other educational institutions.

Suppose an exhibit be arranged in a Museum to teach geology, for instance. Let it be adjusted to the order in which the subject is treated in the neighbouring schools and colleges. Let it be made up of a few specimens to illustrate each subject, but not enough to tire or confuse the children or the parents, who will soon come with them. Let the labels be clear and concise. Make the exhibit an extra illustration of the text-book, not like those in it, by pictures alone, but also by the real

specimens, models, and casts, as well as by pictures, maps, and diagrams, such as are used in the text-book. Let it be so arranged that the child will begin at one end of it when he begins his course in geology at the first of the year, and stand at the other when he graduates. From such arrangement, it seems to me, students would go with clearer ideas of geology than they get from books alone. If this be the case they will appreciate it, and a Museum devoting a portion of its space and attention to exhibits appreciated by children may be sure of such appreciation by the common-sense business man, that he will see that that Museum stands with the school in sharing his patronage and support.

When the Museum makes itself an indispensable adjunct to the school, an extra illustrated text-book, which the student consults frequently, then it may be sure of appreciation by those by whom it has been ridiculed, but who were standing ready to foster it as soon as it showed cause why it should live. Once sure of its living it may devote a portion of its energy to pure science, and thank popular methods for its security.

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MR. BALFOUR considered that the paper suggested several lines for the future action of the Association. The general subject, that of making Museum Exhibition popular, was one in which there was room for much thought and experiment. Such Exhibition should be of a nature to compel attention, and the labels should be full and clear, without being obtrusive or unduly long. One of the main difficulties was to know what to put and what not to put on a label. Few general principles could be enunciated, but it was advisable to have the label diagrammatic in nature, and to avoid detail. Specimen and label should thoroughly correspond and illustrate each other.

DR. FLINDERS PETRIE said that much might be learned from observation of the habits of Museum visitors. His own experience led him to believe that the dread of a long label felt by many curators was scarcely warranted. He had frequently observed that artisan visitors generally picked out the longest label in the gallery; if he read it through, he was often encouraged to make further effort; if he failed he let the matter drop.

MR. GOODRICH deprecated the dread felt by many curators of using technical terms. Very frequently such terms could only be explained by appropriate objects. When such terms were properly illustrated by well-chosen specimens, not only did they cease to be a difficulty, but students and visitors gained much knowledge with great satisfaction to themselves.

MR. PATON said that, in discussing this matter, previous speakers had taken somewhat too narrow a view. He pointed out that an Art Museum was an institution not so much for instruction as for enjoyment and recreation. In such Museums the label was, and should be, quite subordinate, so also was the question of arrangement; the object was what was looked at. It was complete in itself, and its value was to be measured by the pleasure it gave, not by the information it conveyed.

MR. MADELEY protested against any limitation of the word "Museum." He held that these were sound principles of arrangement and labelling that applied to all Museums. He contended that one important principle to be observed in considering the management of any Museum was to meet the needs of the majority of its visitors. In his experience it was the children who should be considered. Adult visitors were generally content with a single visit, and were often unteachable. But he found that children came again and again, and their minds were receptive enough to gather much information from what they saw.

MR. PLATNAUER said that he could not agree with Mr. Paton in considering instructive labels out of place in an Art Museum. Not only were they necessary where art objects were arranged in historical or evolutionary series, but they would be most useful even where individual and independent objects of art were exhibited without regard to definite arrangement. Not only did the ordinary visitor want to know the subject and artist of a picture, but the period, country, and school were of interest to him. Again, the subject often referred to incidents, historical or legendary, that were unknown to the great majority of visitors. In such a case an explanatory label would be of great service, and a work of art might be made to instruct as well as to please the observer.

MR. HOWARTH considered that a label large enough to convey the information suggested would be a decided disfigurement in a picture gallery, and would do much to destroy the highest purpose aimed at in exhibiting works of art, which were never intended to

teach history or chronology. It would be far better, for the proper appreciation of works of art as such, to rigidly exclude such labelling, and, if the information suggested by Mr. Platnauer were necessary, it should find its place in a gallery devoted to reproductions of pictures.

DR. FLINDERS PETRIE could not assent to the assertion that explanatory labels were out of place in an Art Museum. He maintained that a visit to such a Museum would be infinitely more pleasant and instructive if made under the guidance of a well-informed art critic than if made in the ordinary way. Few people could be privileged to obtain their knowledge from such a companion, but all could read labels. Such labels took the place of a cicerone to the ordinary visitor, and they should, therefore, be made to convey such information as the visitor might expect from his guide.

DR. TALMAGE considered that one important function of labels was to awaken a thirst for knowledge, and to make the visitor wish to read and inquire further into the subject illustrated. Labels should, therefore, contain references to literature so that the inquiring visitor might know on what lines to pursue the subject.

MR. BALFOUR said that the general visitor, the student, and the specialist would each require different sets of specimens for his purpose. This constituted a grave difficulty, and made it necessary to consider the kind of visitor frequenting any given Museum before laying down lines for the arrangement of that Museum.

## THE RELATION OF MUSEUMS TO ELEMENTARY EDUCATION.

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BY MRS. TUBBS (formerly Member of the Hastings School Board).

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**A**S introductory to the matter, I will mention that a suggestion made by myself to Mr. Crake of the Hastings Museum to take a class of girls in charge of their teacher from one of our elementary schools to the Hastings Museum met with the warmest encouragement from that gentleman, who very kindly offered to give a historical lecture illustrated by objects from the cases. This was at the close of 1895. Since then classes from other schools have from time to time been instructed in a similar manner either by Mr. Crake or one of the masters of the School of Science. I should add that these lectures were volunteered by the above-named gentlemen.

I will now read Mr. Wm. Crake's (Hon. Sec.) remarks.

The system I have carried out recently is as follows :—

- (I.) The teacher receives notice of the subject, and briefly prepares the class.
- (II.) The class is brought to the Museum and the demonstration is given, including a short lecture of twenty minutes in front of a screen, with specimens arranged on a table in front.
- (III.) Six questions are written on the screen and copied by the children.
- (IV.) The children return to school, and next day answer the six questions.
- (V.) The teacher sends a type-written paper to the demonstrator.
- (VI.) The demonstrator sends answers to the teacher to use as he (or she) thinks fit.



This system I have put into action and found successful. The children enjoy their visits to the Museum and the short lectures.

The questions and answers should be printed to save trouble.

WILLIAM CRAKE.

No inconvenience has hitherto resulted from school visits at Hastings Museum. But the movement is still in its infancy. Only Sixth and Seventh Standard children have hitherto been brought. The class attending when I (as Manager) was present numbered about 15. But Hastings can offer no precedent for large towns or districts such as Whitechapel; also the Hastings Museum, being but a small one, has not hitherto attracted school classes in inconvenient numbers.

As I mentioned before reading Mr. Crake's short paper, the lectures hitherto given were kindly volunteered. Schoolmasters should be quite capable of giving demonstrations to their scholars in front of selected specimens.

Since by Art. 84 of the Education Code, by which when deemed deserving of such exemption the annual examination by H.M. Inspector may be omitted, the pressure formerly incidental to "payment by results" on individual examination is considerably modified; and as, along with this modification, complete freedom in the selection of class subjects is given (see "Instructions to Inspectors, New Code, 1897-8, p. 12, note 14), time can easily be found by any teacher appreciative of the privilege to utilise the Museum for object-lessons in those subjects to which a portion of the school time is allotted.

To sum up, I quote from "Instructions to Inspectors," 1897-8, p. 123, paragraph 33:—

The Code now provides that the time spent during school hours in visiting Museums, Art Galleries, and other institutions of educational value may count towards the time required for an attendance at school, *i.e.*, two hours of secular instruction in the case of older scholars (one hour and twenty minutes in the case of half-time scholars), and one hour and a half in the case of infants. You should encourage such visits wherever such institutions exist.

To secure correct registration the scholars should be mustered at school and their attendance marked before starting; a single teacher should not have charge, as a rule, of more than fifteen scholars; and not more than twenty such attendances may be made in the year. No visits of this kind should be paid unless some person competent to give information of a kind interesting to young children is present, and it would be well to fix the hour of visit at such times as may be least distracting to students or to the general public, and most useful to the scholars, who should not be disturbed by the presence of many other persons.

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MR. BOWLEY considered that the success of Museum classes and demonstrations depended almost entirely on the teacher—be he curator or school teacher. If he could secure the attention of the pupils the lesson would be pleasant and profitable; but, if he lacked that gift, the time spent by the children in Museums would be to a large extent wasted.

MR. HOYLE discussed the problem of how the curator might best help to fulfil the requirements of the Education Act so far as it referred to the visits of school children to Museums. The direct teaching of classes of children by the curator he considered to be impracticable—the demand on his time would be far too great. Ordinary Museum duties left him no leisure for such work. In addition to this difficulty there was the further one that he had no means of knowing the capacity and intelligence of the children. The best plan seemed to him to teach the teachers. The curator should instruct classes of teachers, not only in special subjects, but in the art of giving Museum demonstrations. The saving of time thus effected would be very great, for each member of such a class of teachers could impart the knowledge he had received to a large number of pupils. Besides this, the teacher being in touch with the pupils could convey the requisite information in a form suited to their intelligence.

MISS HALL said that during the first year of her experience in Museum teaching, twenty schools had sent classes. Next year, however, the number fell off, probably because the novelty of the visits had somewhat worn off. She wrote to remonstrate with the teachers, and their reply was the work required in preparation for examinations prevented their bringing the children to the Museum.

The main difficulty she encountered in dealing with Board School children was the large size of the classes, which averaged sixty. In one case 140 children came, with only five teachers to take charge of them. In her experience the teachers showed little capacity for Museum demonstration; she much doubted whether such work could safely be left to them. She had had teachers' classes, but the teachers showed little enthusiasm and attended irregularly. She hoped that a good scheme for instruction of teachers would be evolved; her own experience had not proved encouraging. The effect of examinations, and the special work they involved on children was, in her opinion, decidedly bad. Occasionally the children came of their own accord. Such visitors were by far the most hopeful. They not unfrequently collected specimens and brought them to the Museum, and she had set aside drawers for the special reception of such specimens.

MR. HOWARTH echoed Miss Hall's wish for a practicable scheme for the instruction of school teachers, and considered that the elaboration of such a scheme was part of the duty of the Association. His experience was that at first the teachers simply walked through the Museum with their classes, and little good seemed to result from the visits. The plan was then tried of lessening the size of the classes, and of having notice given of the special group or groups to be studied. This resulted in more careful preparation of the subject, and, consequently, in greatly increased interest on the part of the pupils. The teaching followed the lines determined by the circulating cabinets issued by the Sheffield Museum. He had found it a good plan to give object lessons to the teachers on the contents of the circulating cabinets, illustrating his remarks by lantern slides.

MR. HOLMES said that the plan of having teaching collections was an excellent one. They could be used for the instruction of the teachers, and the teachers could then use them with their classes. He was decidedly of opinion that the most effectual plan of instruction was to teach the teachers.

DR. TALMAGE was strongly of this opinion. He looked upon the curator as a scientific specialist, and the teacher as standing between the curator and the children, acting as distributor of knowledge. In Utah the teachers attended lectures and received lessons before bringing their pupils. The children visiting the Museum on these occasions are allowed half-an-hour to roam about the Museum, they are then called together to receive their lecture. The children are often led to take interest in natural history and to bring in specimens.

DR. FLINDERS PETRIE considered that the great difficulty was to prevent children's attention straying from the subject. He thought that in dealing with such classes we should take the same course that we should ourselves adopt if we were visiting a new place. In such a case we should read up the guide-book *before* going to the place. In the same way we should, before taking the children into the Museum, give them a lecture on what they were going to see, illustrating such a lecture, if necessary, by lantern slides.

MR. PLATNAUER referred to a paper by Mr. Rudler in the Annual Report for 1891, in which the plan suggested by Dr. Petrie was fully considered.

DR. WOODWARD held that, from mere considerations of saving time, the plan of teaching the teachers was best. In his experience, biological teaching generally received scant attention. Hence the use of Index Museums for the instruction of teachers.

MISS TUBBS said that, as a school manager, it had been her constant aim to bring schools and Museums into closer connection. The great difficulty arose where, as in the case of Hastings, a Museum was too small and too poorly endowed to support an educated curator. In her own district, Board School teachers did attend science classes. With regard to examinations, she pointed out that schools which reached a certain standard of efficiency could be excused examination by the inspector. It was schools such as these that should visit Museums. The partial abolition of payment by result had acted very favourably in diminishing "cram." There was some danger lest the children should not take visits to Museums seriously enough. They should never be allowed to lose sight of the fact that these visits were *lessons*. She considered that School Boards ought to be allowed to supply grants for lanterns.

MR. HOWARTH said that School Boards *were* empowered to grant lanterns.

## A FEDERAL STAFF FOR MUSEUMS.

BY W. M. FLINDERS PETRIE, LL.D.

THE present proposal is solely one for getting the best return from a given use of men and money, and does not involve extra expenditure, nor deal with the question of raising the condition of the poorer curatorships, however desirable that may be.

There are two different qualities of Museums where occasional help of specialists is very much needed. There are the higher Museums (perhaps forty or fifty), which have generally at least one curator competent in some one line, and with general intelligence about others, but who needs the aid of those who are competent on the other lines to help him once a year or so in clearing up new material and arranging. Then there are the local collections without any professional curator, but only a caretaker, who is supposed to know a little of everything, but who has no sufficient knowledge to set any standard in any line. In this latter case it might be better to have a person who professed nothing but caretaking, and trust to annual visits of experts for all the work that could give any Museum character to the *omnium gatherum*.

The ideal, therefore, would be to have a body of, say, half a dozen men, each annually visiting all the non-governmental Museums, to assist curators, and also giving some attention to places too poor to pay a curator. Each man should have a good general knowledge of one branch, the six attending to, say (1) Vertebrates; (2) Invertebrates; (3) Botany; (4) Geology and Mineralogy; (5) Modern Man; and (6) Ancient Man. Any unusual objects

which they could not determine at once, perhaps 2 or 3 per cent. of the whole, they could study at home, or refer to those who knew such details. Each man on this travelling staff should be a good lecturer, and give a lecture on the recent advance of his subject during the year. Most Museums are in connection with local institutes where such lectures are wanted and are usually paid for. The lecture fee, with a lesser one from the Museum, would be a fair remuneration for the two or three days' stay, if such work was continuous and some dozens of places were visited in the year. Such a lecturer would, in most places, stay with some person interested in the Institute, and serve to stimulate personal interest in the Museum and in his own subject.

Now the practical steps towards such an ideal are of various stages: some may be entered on at once; others would need long growth and gradual movement. The simplest condition is where a lecturer on a subject gives an hour or two for helping in labelling and attending to his subject in the Museum. Next, there is the step of curators, who are specialists, exchanging visits to each other's Museums; this is often done, but might well be regularly made an organised system. Next, out of these curators, those who were most able in their own subject and in lecturing would gradually extend their scope until, in course of years, those fitted for such work might be mainly devoted to the travelling staff. In fifty years or so there might be thus a system of co-operation with a highly capable federal staff, whose natural organising centre would be the Museums Association. A first step for the Association would be to catalogue all curators that have any special knowledge, and move as an agency to provide their services at fixed fees, where interchange of work was impracticable. Much is already being done on such lines; but a clear aim in view may help to stimulate such co-operation.

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MR. BALFOUR considered that the need for visiting specialists was undeniable: no curator could possibly be an all-round specialist. He found that he himself was constantly wanting to refer to a specialist

for advice; the need of most provincial curators, with a far wider range of subjects to attend to, must be even greater. But Dr. Petrie's scheme seemed to him fraught with great danger. Its tendency seemed to him to be that a mere caretaker would be substituted for a scientifically educated curator. This, in itself, was bad, but the further result would be a cast-iron uniformity in Museums. Each department in each Museum would probably be arranged by the same specialist, and all individuality would be lost. The curator ought to benefit by the advice of the specialist, but he should arrange his Museum himself and impress upon it his own individuality.

MR. HOLMES said that Dr. Petrie's scheme rested largely on the assumption that the expert would be a good lecturer. But special knowledge and ability in lecturing by no means always co-existed in the same individual. Many curators were specialists in some subject, and much might be done if curators would help each other by placing their special knowledge at each other's disposal.

MR. PYCRAFT maintained that under present circumstances a curator need have no difficulty in securing the services of a specialist. But a systematic attempt to organise a band of specialists might lead to the appointment of an inferior class of curator. Our aim should be to raise, not to lower, the standard of the provincial curator. There were also various practical objections to the scheme. To take one instance, the travelling specialist would have no time to make spirit preparations or mount specimens.

MR. PLATNAUER held that Dr. Petrie took too imperfect a view of the curator's functions. The scheme of travelling specialists to arrange Museums and caretakers to take charge of them would have much to recommend it, if our only aim were the arrangement of Museums at the least possible cost. But he maintained that such an aim was too low and imperfect. Sir William Flower had tersely summed up the matter in his statement that the curator was the *soul* of the Museum. The curator in many a prominent town was the means of keeping alive interest in art or scientific matters. To many persons art and science did not appeal, and a Museum, however well ordered, was a dead thing. But a curator was a living entity not easily over-looked, and it was his duty to see that his Museum, and the art and science it illustrated, was not forgotten.

MR. RUDLER said that on some points in Mr. Petrie's paper all were agreed. None could question the statements that curators could not be omniscient, and that it was most desirable that they

should have the assistance of specialists. The main point at issue was, how could the specialist's help be best applied? At Liverpool he had suggested that the specimens to be named should be sent to the specialist. Dr. Petrie's scheme was to send the specialist to the specimens. This plan unquestionably had some advantages, but it had several decided drawbacks. The specialist could not always name a specimen off-hand; he must, in some cases, refer to literature and to named specimens. But it was impossible for him to travel about with a library and a collection. The proposal that the peripatetic specialist should give lectures was a novel and striking feature, but he seriously doubted if it would be found feasible in practice.

MR. MADELEY said that it was not always wise for the curator to ask for outside assistance. He would often find members of his committee who would look upon his candid admission of want of special knowledge as a confession of incompetence. But something in the shape of a registry office for specialists was much wanted. He held that it was best, as a rule, for the specialist to visit the Museum, as his advice was often wanted as to arrangement, and he could best advise after seeing the exhibition space allotted to his subject. He considered that local circumstances would sufficiently modify arrangements, and that there was therefore little danger of cast-iron uniformity. He expressed himself delighted to find a specialist like Dr. Petrie could enter into the difficulties of the provincial curator and sympathise with him.

MR. H. EVANS said that the casual suggestions of the specialist were not always acted upon. In many cases the curator could not carry them out for fear of offending some benefactor of the Museum. But if the specialist were called in professionally, his opinion might be accepted by the benefactor to the great relief of the curator. He feared, however, that the project would be found to be unmanageably large. Many Museums contained collections so diverse as to require the aid of a score of specialists. It seemed to him that the first step towards reform was for each such Museum to curtail its range and to develop along special lines. Position and opportunity would determine for each Museum the direction in which it could best specialise, and that settled, haphazard additions should be discouraged, and the whole energy of the Museum should be concentrated on its special points.

MR. HOYLE held that large Museums as well as small ones would benefit by any scheme that circulates specialists. He had got much



useful help from the occasional visits of specialists. His assistant, Mr. H. Bolton, had arranged the geological collections of other Museums with the full approval of his Museum authorities, who recognised that such work was useful to the visiting specialist by extending his experience. Such visits often resulted in exchanges useful to both parties. It seemed to him that much might be done by curators helping each other with such special knowledge as they possessed. He admitted that it was often impossible for the specialist to name a specimen off-hand ; but the difficulty, he considered, was not a serious one, as the majority of Museum specimens belonged to common species, and could be readily determined.

MRS. TUBBS said that the difficulty of finding specialists who were good lecturers had been urged with much force as an objection to Dr. Petrie's scheme. She suggested that this difficulty might be met by arrangement with the University Extension lectures.

MR. HOWARTH expressed a wish that the opinion of Museum managers and members of Museum committees could be heard. It was they, and those whom they represented, that bore the expenses of Museums. What was wanted in most Museums was a larger grant for assistants, and this could only be obtained by securing the sympathy of city councils. With such a grant the curator could take on the specialist as a temporary officer. Judging from the results of his own experience he should say that it would be best for the specialist to come to the Museum. It sometimes happened that collections sent for determination were kept an unreasonable time by a specialist who was too busy to attend to them.

MR. GOODRICH did not consider the difficulties in the way of the specialist's visiting the Museum by any means insuperable. The amount of literature required for him to determine the majority of Museum specimens was not more than he could conveniently take with him. A few specimens might, it is true, need further reference and comparison ; but those few he could quite well take with him or have sent to him.

MISS HALL called attention to the list of specialists published in "Natural Science."

DR. PETRIE said that it was not the curator but the local ignoramus who would be suppressed by his scheme. He would take a case where £90 a year was given to an incompetent curator. Would it not be better to replace him by an intelligent caretaker at £60, and spend the surplus £30 on securing the services of a

specialist for a few weeks? He certainly considered that it would be well for local authorities to support Museums more liberally, but his scheme was one for utilising our present resources so as to obtain the best possible result; not one for obtaining increased means. Those critics who objected that a specialist was not always a good lecturer seemed to lose sight of the fact that there was more than one specialist in any given branch of knowledge. Among even two or three specialists there was sure to be at least one lecturer. The difficulty raised about the making of preparations might easily be met by having some centre at which preparations might be set up, and from which they might be distributed. With regard to the difficulty of naming specimens without literature, he thought that there were few Museum collections in which a specialist could not determine nineteen-twentieths of the specimens without reference. Securing the services of the specialists was simply a matter of money. Thoroughly competent men could be got to do the work at £600 or £700 a year—an amount easily raised by the united efforts of a few Museums. And the whole number of Museums to be dealt with was probably little over one hundred.

MR. BALFOUR said that there was complete agreement as to the wisdom of securing the services of specialists, however opinions might differ as to the best scheme for effecting this. He hoped that all specialists that came to the help of curators might be of Dr. Petrie's type.

## MUSEUM PREPARATIONS

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BY E. S. GOODRICH, B.A., F.L.S

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SINCE the members of this Association will have the opportunity of examining the zoological preparations recently put up in the Court of the University Museum, I thought it might be of some interest to give a brief account of the methods we have employed there.

Each specimen is placed in a rectangular tablet of wood,  $\frac{1}{8}$ -inch thick. A definite unit of 3 inches has been adopted for the size of these tablets, the length and breadth of which are always some multiple of that number. In this way the tablets can be made to fit into each other, and their relative positions can be altered without loss of space. The first point to consider then is the colour of the tablets. As a background for the objects themselves nothing, I think, will be found better for general purposes than dull black; very rarely, when the specimen is very dark, we have to adopt a light background. But a light border is needed for each tablet; first to separate it from neighbouring tablets, and secondly to relieve the funereal aspect presented by a uniformly black background. To do well the border should be of a light and soft tint, which will not attract undue attention or clash with the colours of the specimens. It is also most important that it should not fade or change colour. The colour here adopted is a pale bluish-green.

We now have to consider how to fix a dry specimen on our tablet. If the object is small and light, and offers a favourable surface, it can be cemented on; if heavy, or if of unfavourable shape, it must be secured by means of pins driven into the

tablet, or more often of copper wire passed through holes and fastened at the back. Having fixed the specimen on the tablet, the next and most important thing is to label it. First of all, the specific name, the locality, the source, and the catalogue number must be given: these are printed on a small label placed at the top right-hand corner. But this is not sufficient; the various parts of the specimen must be clearly named and distinguished by special labels. Flag-labels, or labels on the specimen itself, are generally to be avoided, since they often hide the very thing we want to show, or, at all events, interfere with the general view of the object; it has therefore been necessary to adopt a plan somewhat similar to that used in the lettering of a figure in a book—the labels are pasted on the tablet with a narrow red pointer going to the part named. The method of making the pointers is quite simple—a sheet of stiff letter paper is painted on both sides with tube oil-paint—either vermillion or, better still, a mixture of vermillion and alizarin—and cut into thin strips with a sharp knife and steel rule on a glass plate. One word as to the management of labels—in the making of Museum preparations everything which saves time and money is of use. Now it is obvious that it would be very expensive to have a special set of labels printed for every new preparation, and since thousands of words are used, and many of them often recur (such as Lower Jaw, Femur, etc.), we must have some method of readily finding any given word when needed. We print the labels, as a rule, in the Department by means of a hand-press in sets covering a sheet; each set is placed in a numbered envelope, and the contents of each set are classified in an index under headings, with references to the number of the envelope. Like the pointers, the labels are cut out with a sharp knife and metal rule on a glass plate. The specific labels, on the other hand, are placed as printed in alphabetical order on an index, with references to the envelopes in which they are to be found.

In many cases not only must the part labelled be pointed out, but also its limits must be clearly marked—

as, for instance, in the bones of the skull and the calcareous plates of the Echinoderms. For this purpose I draw a red line—with a fine brush dipped in water-colour vermilion—along the sutures to be marked. The practice of painting over the bones with bright colours is, I think, to be avoided; the result is generally very ugly, and gives the specimen an artificial appearance which it should not possess. In very rare instances, where the bones are small and form a special set which has to be compared from one specimen to the other, as in the case of the bones of the palate of Birds, I have used colours.

One word on the important question of the painting of casts. It is the time-honoured custom for casts (I refer especially to the casts of fossil vertebrates) to be painted more or less carefully in imitation of the colours the fossils have unfortunately assumed while lying in the matrix. For instance, the skull of a Labyrinthodont may be painted a shiny black, the skull of a mammal may be painted light red with coal black teeth, and so on—or, worse still, the colours of the fossil and of the rock-matrix may be so skilfully blended that it becomes impossible to see where the one begins and the other ends. Stains due to filtration of dirt into the rock will be faithfully reproduced; but you may look in vain for any indication of the sutures of the bones and other *important* details which can be made out with care in the original. Now the object of the zoologist is to bring the fossil forms into close relation or comparison with their living representatives, and for this it is important that bones should look like bones, and teeth like teeth, and that the limits of the fossil and its constituent parts should be clearly marked when they have been made out in the original specimen. We have, as far as possible, adopted the plan of painting the matrix dark, the fossilised bones bone-colour, and of marking out the sutures with red lines as in ordinary skeletons. Before leaving the subject of dry preparations I should mention a difficulty concerning cartilage. It is often the case that small but very important pieces of cartilage are either missing in dry skeletons or have shrunk beyond recognition. I have found it very useful

to restore such pieces by modelling coloured paraffin wax in the place of the cartilage.

Almost all the wet preparations in the zoological collections are mounted in 70 per cent. alcohol in square glass jars, one face of which is ground and polished. The jars are ordered of definite sizes to fit the tablets. The spirit specimen, if small and light, can be fixed on to a glass plate by means of photoxylin—a kind of celluloid, soluble in ether and absolute alcohol, which coagulates in spirit, forming a transparent cement of gelatinous consistency. If heavy, the specimen is tied on with black thread. It is then labelled, just as in the case of a dry specimen, the labels and red pointers being fixed with photoxylin. The glass plate with the labelled preparation is then slipped into a glass jar filled with spirit to such a level that, when placed in the sloping case, the spirit just reaches to the top of the jar. The cover is then sealed down with hot glycerine jelly, and subsequently the back of the jar is painted black, and also the edge of the cover and top of the jar to just below the level of the spirit. A small hole is made at one corner of each cover to prevent the jars bursting through variations of pressure due to alterations in the temperature or other causes; this hole can be stopped with a small plug. When finished, the jar is placed on a tablet resting on a small black shelf screwed on from behind. To make these shelves long strips of wood are taken of the necessary width and shape, and cut up when wanted into lengths, which are painted and glued on to the tablets.

When the wet or dry preparations have thus been mounted on tablets, they are placed in the exhibition case on sloping boards, and it is generally necessary, in the case of dry preparations, and always in the case of the spirit ones, to screw the tablet on to the board to prevent its falling forwards.

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MR. HOYLE agreed with Mr. Goodrich on the question of painting casts of fossils. He objected, however, to the black line round the top of the jar, as it cast shadows. Transparent cement, such as glue and turpentine, should be used, and the specimen should be kept

under the surface of the spirit. Glue and turpentine could be used instead of photoxylin. He considered the hole in the cover unnecessary. The cover could be lifted when it was found desirable to change the spirit.

DR. FORBES said that he also found the hole in the cover unnecessary.

MR. HOLMES said that he had found it difficult to get paper of the tint he wanted, and to match what he had already got. He should be glad to have directions for the preparation of the glue and turpentine.

MR. HOYLE said that the mixture was prepared by dissolving the glue and gradually dropping in the turpentine.

MR. GOODRICH said that the black line at the top of the jar was not objectionable when the jars were on a slope. The hole in the cover was found to be necessary in the Oxford Museum, as the jars were sometimes exposed to direct sunlight. He obtained the paper he used from Filmer Brothers. In the case of heavy opaque objects glue can be used, instead of black thread, to fix them on the glass plate.

## THE CIRCULATION SYSTEM AT SOUTH KENSINGTON.

BY E. HOWARTH, F.R.A.S., F.Z.S.

CONSIDERING the increasing use which is being made of the circulation of objects from South Kensington Museum to provincial Museums, it may be interesting to give a few particulars of the circulation system from the last annual report of the Science and Art Department. And the present juncture is perhaps a favourable one for considering the whole question, in view of the fact that a Committee of the House of Commons has been appointed to inquire into the administration and working of the Museums under the Science and Art Department; so that, if this Association has any suggestions or recommendations to make, the present would be the proper time for bringing them forward. There are two methods by which the South Kensington Museum offers assistance to provincial Museums, and the usefulness of this assistance is as much dependent upon the action of local Museum authorities as it is upon the National Museum in London. In the first instance the South Kensington Museum lends for a definite period to other Museums under satisfactory management objects of so-called industrial art, which practically comprises all materials in which the artist or craftsman can exercise his skill. The purpose of this is clearly intended to cultivate generally a taste in objects of use for those which are artistic and beautiful, and, at the same time, provide suitable objects for the purpose of closer study or for copying by art students. In relation to the present position of Museums, which are now widely used as places of general



resort by the public, and are not simply places of study for the special student in science or art, it is desirable that the two-fold purpose of the collections should be borne in mind. With regard to the student aspect of the question, the particular industries of any given neighbourhood to which art can be applied should naturally first be considered, and these, of course, are most within the knowledge of the local people, from whom should come the suggestions for the particular objects desired. After more than twenty years' experience of loans from South Kensington I can testify to the consideration they have always given to requests for loans of objects of a special character, and although it has not always been possible to obtain as many illustrations of subjects as might have been desired, that has been chiefly on account of the altogether insufficient number of objects available for loans. In Sheffield it has been customary in arranging for loans from South Kensington for the Museum authorities to confer with the School of Art, and any other bodies, such as the Arts and Crafts Guild, concerned in the promotion of art education. The loan for the year has then been selected with regard to the special requirements of the students thus ascertained, with due regard to the interest of the general body of visitors to the Museum who are not art students, and to whom the opportunity of inspecting beautiful objects for use or ornament in the home, such as pottery, furniture, carving, lace, &c., has a very direct benefit. It may frequently be found desirable in connection with the work of local art students and craftsmen to obtain objects specially related to the industries of any given neighbourhood, particularly when these are of a definite character, such as lace, tapestries, textiles, pottery, silver, and other metal work, cutlery, &c., and in this direction the South Kensington Museum can render valuable aid by granting suitable loans. But, on the other hand, a local Museum should provide within itself the material specially applicable to its own neighbourhood, whether in science or in art, and for this purpose, from the second method of assistance, by means of a grant in aid of the purchase of objects, the greatest benefit can be

obtained. Keeping, however, at present to the question of loans, I think it will be admitted as a general principle that the primary object of a National Museum, which concerns itself more particularly with illustrating the best application of art to industry, should endeavour to do this in the fullest and broadest possible manner in respect of art itself, without specialising in the direction of the needs of any one industry. Its object should be the promotion of art, and aim at making it appreciated by the people. Developing and cultivating in this way art generally in its application to objects with which all are associated must influence art feeling in every direction, and thus benefit both the special student (whatever branch of art industry he follows) as well as the general visitor. By this means also any Museum, whether it wanted to illustrate the principle of the application of art to industry generally, or to any one industry in which it was locally concerned, could be alike assisted. But the collection should have some pretence to completeness, either from the geographical, the historical, or the evolution point of view. Where any one country or locality has been specially famous for its artistic productions, a collection showing these is of value educationally, just so far as it shows the evolution of ideas in art and their applicability through a long series of years, with all stages of variation shown. To take an example from the South Kensington Museum itself in another branch of art where this has been done. Many Museums belonging to our Association have doubtless had on loan the collection of historical water-colour drawings which is circulated from South Kensington, so definite and complete in itself as to make it a practical encyclopædia of the subject, that furnishes every detail to the student, and presents to those not specially connected with art such an attractive view of this particular branch of art as to excite an intense interest. In fact, speaking from personal experience, I think that the general visitor to the Museum realised more fully and enjoyed more perfectly this complete and beautiful collection, from its very impressiveness on the mind, an influence perhaps more lasting and beneficial from the very

fact that it was in a measure unconscious and could not be defined, than did the student whose particular predilection induced him to study more closely points of detail, manipulation, method, and technique generally. This is an example to be applied to every branch of art taken within the sphere of the South Kensington Museum. There are, of course—and these are fully recognised—limits of space and means even in a National Museum, though in a country like ours these can scarce have yet been reached if the Government viewed the subject in that liberal and enlightened spirit which it demands. South Kensington Museum itself, taking all its contents into account, has yet much to acquire before it attains the most modest perfection in the illustration of its subjects; and when the view is limited to the circulation departments, the objects available therein are almost ludicrously insufficient. This, I believe, is generally recognised, and it is not necessary here to labour the question, my object being rather to emphasise the need of a proper recognition of the work of the department, which ought not to be frittered away in endeavours to meet demands on it far beyond its capacity to fulfil; and further, that local Museums should be helped rather to do the work which they have not in themselves the means to carry out, but should not be encouraged to rely on the National Museum to do work for them which it is their bounden duty to do for themselves. According to the annual report of the Science and Art Department for 1896, there are fifty-two provincial Museums receiving loans of objects from the South Kensington Museum, and the number of objects on loan (including those to schools of art, exhibitions, &c.) was 31,442. This shows how very largely the system is used, and also indicates the necessity of giving to it the means and material essential to properly carrying out its important work.

Turning now to the grant made for the purchase of objects for provincial Museums, the results are somewhat meagre. Only five Museums participated in the grant in 1896, and the total amount thus received was £517 4s. 11d. This amounted to

one half of the cost of the purchases for which the grant in aid was obtained, the other half being met by the local Museum authorities. It will be obvious that this source of aid might prove of the very greatest service to Museums in forming collections of works of industrial art such as may be of more permanent interest in relation to special local requirements. Whether the smallness of the grant and of the number of Museums participating is due to the parsimonious spirit of the Government, or to lack of enterprise on the part of provincial Museums, does not appear from the report. At anyrate, one can hardly help thinking that there is remissness somewhere. It may be mentioned that the grant in aid of purchases is made on condition that the objects purchased are approved by the Science and Art Department, and that the Museum applying shall provide one half the cost. Preference used to be given to reproductions rather than to original objects, but I believe this very unwise limitation is now withdrawn. It seems to me that provincial Museums scarcely recognise the fact that the judicial expenditure of a sum of money on their permanent collections can make them much more educationally valuable than any miscellaneous gifts or temporary loans, and the fact that half the cost of purchase of works of industrial art (the most wide-spread, fullest appreciated, and most extensively applied of all branches of art) can be obtained from a central authority, whose advice and knowledge is at the service of local Museums for attesting the genuineness and value of the objects to be purchased, ought to have great influence in opening the purses of municipal authorities who have charge of Museums. The greater liberality which in these days is shown to all agencies concerned in the education of the people makes it unlikely that Government would withhold its hand in giving freely to Museums which showed a disposition to develop into first-class institutions.

These considerations appear to me not to be out of place at the present time when the whole system is being carefully inquired into, and it is to be hoped that suitable opportunity will be given to provincial Museums to state their experience

and to make their wishes known. For this purpose I propose the resolution standing in my name. [The terms of the resolution will be found under the head of General Proceedings on page 13.]

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MR. CAMERON expressed regret that he had not been put on the present Commission. Only one vacancy had occurred of late, and a Welsh member had been appointed to fill it. He had made inquiries about the "Challenger" Reports, and had learnt that there were no more complete sets for distribution, but that odd volumes might still be had. He did not know what principle had been adopted in the distribution of such sets as had been sent out.

MR. MADELY said that it was possible to obtain a fifth case from the Department; they had got one at Warrington. He considered that the scientific departments of Museums required help. A little was done in that direction by the Department; for instance, they had obtained a case of chemical apparatus and preparations; but the help given was inadequate, and it seemed difficult to get series suitable for exhibition. It would be a very useful thing if cases of preparations like those in the Index Museum of the British Museum could be obtained, and he suggested that Mr. Howarth's proposal should contain a clause calling attention to this point. There was also room, in many instances, for better and fuller series than were sent out; he had found the glass sent out very insufficient.

MR. PATON thought it wiser to leave the proposal in the vague and general terms in which it was already couched. To specify the kind of object wanted and the kind of Museum that should receive it would be to narrow the proposal to the extent of hampering its utility, and would tie up the hands of the officials who had to administer, however generous their intentions might be. A vague proposal always left room for a liberal interpretation. The loan, moreover, of small selections of scientific objects and apparatus would prove a very doubtful advantage to the recipient institution.

MR. PLATNAUER considered that the Department might be much more useful to Museums if it did not confine its functions to lending. Why should it not be ready to sell preparations and cases to such Museums as were willing to purchase. A central body like the Department could obtain such things at a low price, and could afford to sell them without exorbitant profit.

MISS HALL said that the labelling of the cases sent out by the Department called for improvement. Some of the cases were comparatively useless from the inadequacy of their labels. It would be a great advantage if the cases were accompanied by descriptive catalogues for distribution among Museum visitors.

MR. EVANS considered that Museums might be materially helped by some central institution which could distribute or sell casts. Many series of casts would prove most useful; for instance, the casts of coins issued by the British Museum. In any case, good casts would be more instructive than poor specimens.

## THE COLOMBO MUSEUM.

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By GERARD A. JOSEPH, Secretary and Librarian.

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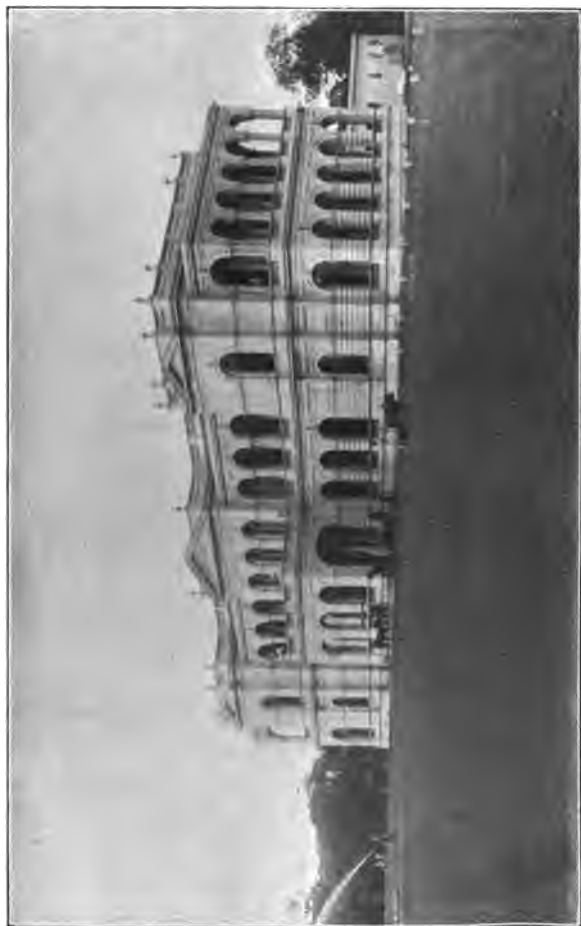
**T**HE Museum was founded in 1877 by the late Right Honourable Sir William Gregory, K.C.M.G., Governor of Ceylon, and the building was erected from designs prepared by the Government architect, Mr. James G. Smither, F.R.I.B.A. There is a handsome statue of the founder in front of the building, "Erected by the Inhabitants to Commemorate the Many Benefits conferred by him upon the Colony during his Administration of the Government from 1872 to 1877."

The building—one of the most attractive of its kind in the city—reflects the highest credit on the architect. It is designed in the Italian style of architecture, and is two storeys high, with a strikingly charming façade. It is pleasantly situated, and surrounded by prettily laid-out grounds which cover about six acres, bounded on the south and east by the public road, and on the remaining sides by reserved land belonging to the municipality. The Victoria Park—a Jubilee memorial of the Queen's reign—lies at the back of the Museum.

The Museum occupies a central position on the grounds at a distance of about 70 yards from the high road, the front facing the south. It is maintained by Government, and admittance to it is free.

### THE EXHIBITS IN GENERAL.

The collections in the Museum have, of late years, quite outgrown the space accommodation which the building affords, consequently the admissions have been limited to only selected



THE COLOMBO MUSEUM.





specimens. The collection is entirely of an insular character. The exhibition of specimens is subject to serious drawbacks, owing to the constant change of detail and arrangement due to want of space. The urgent need for extension is known to and has been appreciated by the Government, and hopes are entertained that an enlargement of the building will shortly take place which will provide accommodation for the numerous specimens which are at present lying idle in the store rooms.

#### VISITORS.

The Museum is visited daily by a large number of sightseers, resident and non-resident. The Museum grounds, on the occasion of festivals such as the *Wesak* (Singhalese New Year), *Hadji Peranal* (Mohammedan New Year), which are proclaimed public holidays, present the appearance of a fair, with the swarm of natives in gay holiday attire. Of all days the Sabbath—a *dies non* with all classes and communities—is the best patronised, chiefly by the labouring classes, who, taking advantage of their rest from toil, repair thither to spend the time in profitable sightseeing.

On entering the building the visitor is first attracted to the

#### CENTRAL HALL.

There are here exhibited gold figures of Buddha, offering boxes, ancient swords and daggers, brass implements, ivory carvings, brass and copper work, wood carvings, and specimens of native jewellery, all objects of antiquity, and some several hundred years old. The Kandyan swords and knives are noticeable for their elaborate chasing on hilt and sheath.

Though they may be looked upon as intruders, among the exhibits in this hall are included specimens of agricultural products, most of which are exported from the island, namely, tea, cocoa, cinchona, cinnamon, coffee, tobacco, and paddy, with its numerous varieties, &c.

To the left of the Central Hall is the room designated

#### “THE CEYLON PRODUCTS ROOM.”

Here we come across a nearly complete series of coins of the Singhalese kings. The device on the obverse of all of

these is the same, viz., a standing figure of the king holding a flower in his right hand and the *trisula* in his left, the folds of his flowing robes or "Dhoti" being rudely indicated by the artist. On the reverse the same figure is repeated, but in a sitting attitude, the name of the Raja (or king) being placed beside it.

The list of the kings of Ceylon began with *Prâkrama Bahu*, 1153 A.D., and goes down to *Bhuwaneka Bahu*, 1296 A.D., coins of eight monarchs out of sixteen are extant. No coins are known to have been struck by the Portuguese in or for Ceylon, but their coins were in use. The Dutch struck silver rix dollars, and various coins that were in use in Holland were also current in Ceylon—all which are represented.

Exhibited in this room are also samples of chetty jewellery and some pottery from Kandy. The pottery from Matara is grotesque, and is said to be not unlike that of Peru in design. Models of carts and boats and fishing implements are numerous. It may be mentioned in passing that no iron is used in the building of boats, the planks being stitched together with coir thread and secured by wooden trenails.

#### DALADA, OR THE SACRED TOOTH OF BUDDHA,

is of special interest to foreigners. It is said to have been brought to Ceylon a short time before Fa Hian's arrival in the reign of *Kirti. Siri. Meghawarna*, A.D. 311. The one exhibited in the Museum is said to be a duplicate of that in the *Dalada Maligawa* (Temple of the Tooth Relic) at Kandy adored by innumerable pilgrims from all parts of the world, who come to do homage to this relic, and to offer gifts of gold and silver, jewels, flowers, &c. No relic, as Bishop Heber truly remarked, "was ever more sumptuously enshrined or more devoutly worshipped." The original itself is supposed to be a spurious substitute for what was destroyed in 1560 by the Portuguese at Goa, whither it was taken. The history of the tooth relic is "another story," and is related with

much particularity by the Portuguese authors of the period and their contemporaries.\*

The original was said to have been rescued from the flames after the cremation of the remains of Buddha, B.C. 543, at Kusinara in India, and it was preserved for 800 years and then brought to Ceylon in the fourth century after Christ. Since the *Dalada* was rescued from the funeral pile it went through stirring times, several monarchs fighting for its possession, and it has played an important part in the religious history of India. Judging by its dimensions, the present *Dalada* exhibited in Kandy resembles more the tooth of some gigantic animal than a human molar, and it is impossible to ever imagine it to have belonged to any species of the *genus homo*. At the great annual procession known as the *Pera-hera*†—a festival of prehistoric origin—amidst the deafening and weird sounds of Singhalese music, clatter of tom-toms,‡ clanging of brass cymbals, accompanied by elephants, devil dancers, priests, and Kandyan chiefs, and a vast crowd of all sorts and conditions of men and women dressed in their gayest, the Tooth Relic is taken out of the temple on the back of an elephant along the streets of Kandy. The *Pera-hera* can be traced back to the second century of the Christian era.

#### DEVIL DANCERS' MASKS.

A case containing masks used by devil dancers in times of sickness calls for special remark. The design of these masks is said to be of great antiquity. They are emblematic of all the diseases that human flesh is heir to. The masks are worn by devil dancers whose assistance is religiously sought and

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\* For particulars about the Tooth Relic see Muttu Coomaraswamy's translation of Dharma Kitti Thera's "*Dathawansa*," or the History of the Tooth Relic: and also "Memoir of the History of the Tooth Relic of Ceylon," by J. Gergson da Cunha, 1875.

† For a description of the *Pera-hera* see Miss Gordon Cumming's book, "Two Happy Years in Ceylon," Blackwood, 1892.

‡ A sort of tambourine made of well-cured sheepskin tightly stitched over a wooden frame.

implicitly relied on by those concerned in times of sickness. The demons exorcised by the performers are called *Yakseyo*, a class of beings who are said to have the power of seizing and devouring living men, but whose influence is happily restricted by the powers of the superior benignant deities.

#### PEARL FISHERY.

In one of the cases is found a model of a pearl fishery. Fisheries of this kind are held frequently in the north of the island near Manaar and a considerable revenue is derived by the Ceylon Government from them. The divers come from the Arabian coast and receive in return for their services in the deep one-third of the produce of any fishery.

#### THE COCONUT PALM.

An entire case is assigned to the products of the "King of Palms," the coconut (*Cocos nucifera*). According to the testimony of M. de Candolle, the introduction of the coconut palm into Ceylon, India, and China, dates three thousand years back, and favours the opinion of an American as well as an Asiatic origin for this tree, and assigns its original habitat to "The Indian Archipelago." The coconut palm supplies all the wants of the Singhalese villager. Its uses are endless, and enter into every part of the daily life of the Singhalese as food, drink, light, fuel, household utensils, and building materials. It is an article of foreign commerce, chief source of Singhalese wealth, and an important field of Singhalese industry in the island.

#### THE PALMYRA PALM.

Another case contains the products of the palmyra palm (*Borassus flabelliformis*), which is highly prized for its timber. Bertolacci, in his work on Ceylon, says, "After the coconut tree the palmyra is the richest plant in the East." This tree is known as the fan palm, owing to the fronds being fan-leaved, armed with spines radiating from a common centre and the

stipes serrated at the edges. The fan part is about 4 feet in diameter; the spines are cut off, and the middle is formed into fans; these are lackered for sale or used plain. Buddhist priests largely use fans of the smaller sort with handles of ivory, the country villager usually uses the leaf in its rough, dried state as a protection from sun and rain, the circumference of the leaf is large enough to shelter from six to a dozen persons under it. When dried it is tough but supple and flexible, and can be folded up like a fan. The books of the Singhalese are formed, as they have been for ages past, of ola or stripes taken from the young leaves of the palmyra palm. On these palm leaves the custom is to write with an iron stile held nearly upright and steadied by a nick cut to receive it in the thumb nail of the left hand. After being written on, in order that the characters may be better read, an application of charcoal ground with a fragrant oil is rubbed over. To the aromatic smell of the oil is ascribed the remarkable state of preservation of many of these ola books, which secures for them freedom from the attack of vermin, chiefly white ants.

#### MALDIVE CURIOS.

A collection of articles from the Maldive Islands\* (a dependency of Ceylon) occupies two cases consisting chiefly among others of wearing apparel and beautiful lacquer work, for which the islands are noted. The collection was presented by the Sultan of the Maldives, and was recently exhibited at the World's Columbian Exposition at Chicago. The Maldive Islands are grouped together in clusters called *Atols*, of which there are more than twenty in all. *Malé*, the capital and central *Atol*, is about four hundred miles from the nearest port of Ceylon. The islands are all very small; they are governed by a sultan, whose title and rank are hereditary. The Maldivians have a peculiar form of government of their own, and are said

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\* For a full account of the physical features, climate, history, inhabitants, productions, and trade of the Maldives by H. C. P. Bell, see Sessional Paper, Ceylon, 1883.

to be a very peaceful, timid people, amenable to discipline, above want, and not lacking in commercial activity and intelligence. Much curious information could be gleaned by studying the currency, form of government, revenue, division of property of this still primitive people, who have had little contact and intercourse with people of more civilised governments, and who, in spite of their connection with the English Government for over eight years, have not altered their form of political life.

#### ANTIQUITIES.

We now enter the "Antiquities Room," which is full of ancient sculptured stones, inscribed pillars, showing the changes which have taken place in the characters and language of the Singhalese since the end of the first century, and other interesting relics of past times. Most of the sculptured stones in the verandah of the "Antiquities Room" are from *Anuradhapura*, the ancient capital of Ceylon, B.C. 437, or about five hundred years before the Christian era.

To the antiquarian and archæologist the ruined historic city of *Anuradhapura* will always be a most fascinating field of research. It contains the exquisite remains of an architecture and civilisation of two thousand years ago. It will be foreign to a paper of this description to venture to describe the gigantic tanks, palaces, and *dagabas* (temples) of this once imperial city. The ruins were buried for ages in an ever-increasing wilderness of jungle. From 1830 portions of the ruins have from time to time been excavated, and palaces, temples, numerous enclosures, stone walls, ruined colonnades, &c., have been laid bare. Since 1891, thanks to Lord Stanmore (then Sir Arthur Gordon, Governor of Ceylon), an archæological survey of Ceylon has been set on foot, and under the able direction of an experienced civil servant of many years residence in the island, and well versed in Singhalese lore, a thorough and systematic investigation of the extensive ruins of *Anuradhapura* and its surroundings has been started and is being carried out, already yielding most satisfactory results.

A striking object in the room is the colossal stone lion which formed the judgment seat of King Sahasa Malla (A.D. 1187-1198) which bears an inscription to that effect. This wonderful piece of rock carving is of enormous weight, and it was brought with considerable difficulty from Polonnaruwa to the Museum. The lion was unfortunately damaged, evidently in the transport to Colombo, a portion of the head and back being injured.

Facing the lion is the beautifully carved stone window from the palace of *Yapahuwa*—a slab of stone measuring 4 feet 7 inches by 3 feet 3 inches, by 7 inches thick; perforated into forty-nine rings or circles, and in each circle there is a different sculptured figure.

The other exhibits worthy of notice, in this room, are the Frieze from *Horana*, Moonstones (being the first landing of the flights of steps leading up to doorways of temples and other sacred enclosures), a cast of the King *Prakrama Bahu* I., who ascended the throne 1153 A.D., and was one of the most illustrious of the native rulers; quaint and beautiful carvings and monuments of the Singhalese dynasty, including numerous bronze figures of Buddha, principally from the *Ruanweli*, Dagoba, at *Anuradhapura*.

#### ETHNOLOGICAL CASTS, &c.

Ethnological casts of a *Ratamahatmeya* (Kandyan chief) in national dress, a low country head-man, Singhalese bride, Buddhist priest dressed in his toga-like yellow robes, one of the characteristic elements of the picturesque scenes of Ceylon, and two figures of a Veddah man and woman which are of special interest. This race is fast disappearing. They inhabit the forest country of Ceylon (between Bintenne and Batticaloa). They subsist solely on what nature affords them—the game they kill, the fish they catch, and the roots and yams which they dig up.

The country they live in generally abounds with game, which they capture with their bows and arrows, their only weapons of defence and offence. The Veddahs are identified with the



*Yakkos*, the aboriginies of the island, who, after the conquest by *Wojeyo* (B.C. 543), the founder of the Singhalese dynasty, are said to have retired before the invaders into the wilds. They speak a corrupt form of Singhalese, and it is very difficult to understand their language. They are a very hardy lot, and live in caves or hollows of trees, and are nomadic in their habits.\*

In a few years the appellation of Veddah will be retained only as a traditional name. Their bows and arrows, which are exhibited, are prepared from the bark of the tree known to the Singhalese as *Rettagaha*, and the arrows are feathered with the red plumes of the peacock. The arrow heads are procured from the Singhalese smiths in a curious manner. Veddahs when in want of these arrow heads carry a quantity of dried flesh and honey to a place near the residence of a Singhalese blacksmith, and hang it up on a tree, together with a leaf cut in the shape of the article they want. The smith does not fail to accept the offer made to him, and in due time hangs up in the same place the article required in return. Several books have been written about the Veddahs, which afford an interesting study, chiefly from an anthropological point of view. In the proceedings of the Ceylon Branch of the Royal Asiatic Society will be found many papers regarding their habits, quaint customs, bows and arrows, physical characteristics, their descent, etymology of the name, charms and spells, and mode of burial, &c.† In the verandah of the Antiquities Room are to be found several sculptures from

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\* There are three classes of Veddahs; the wild Veddahs, village Veddahs, and the coast Veddahs. I refer to the first named.

† See Professor Virchow's two papers, "Ethnological Studies of the Singhalese Race," and "The Veddahs of Ceylon and their relation to the Neighbouring Tribes," in *Journal*, Vol. IX., 1885-86, of the Ceylon Branch of the Royal Asiatic Society, and also a paper by Dr. Sarasin, entitled, "An Outline of Two Years' Scientific Researches in Ceylon," and a paper on the Veddahs, by C. J. R. Le Mesurier, of the Ceylon Civil Service, published in the same *Journal*, and a paper by Louis de Soysâ on "The Origin of the Veddahs, and a few Specimens of their Songs and Charms," *Journal* No. VII., 1881-82, and a paper on "The Veddahs of Bintenne," by the Rev. T. Gillings, in *Journal* No. II., 1849-55. "Au Pays Des Veddahs Ceylon," Par Emile Deschamps, Paris, 1892.

*Anuradhapura* and *Tissamaharama* and other capitals of a bygone age, and monoliths from various parts of the island; the oldest of these records the construction of *Vihares* (Temples), by King *Gajabahu*, A.D. 125-131, as being in a good state of preservation.

Along the side of the verandah there are a few specimens of ancient stone inscriptions scattered about, as well as a magnificent gneiss column made in the material used in the construction of the Colombo breakwater. On the staircase are copies of the remarkable

#### FRESCOES OF SIGIRIYA,

which are said to be fourteen hundred years old. The copies were drawn by Mr. A. Murray of the Public Works Department, who climbed the impregnable fortress of Sigiriya at the risk of his life, and went through considerable hardship and physical discomfort in the execution of his toilsome work. The singular stronghold of Sigiriya rises from the plain with perpendicular sides to an estimated height of 500 feet. It is accessible only by precipitous pathways with the help of ladders. It is said to have been built A.D. 477 by King *Kasyappa* the Parricide, who, having dethroned his father, *Dhatu Sen*, stripped him naked, loaded him with chains, and caused him to be built up in a wall. The Parricide, oppressed with fear that his unnatural and atrocious crime would be avenged, and haunted by its remembrance, sought security by constructing this "rock of refuge," which he fortified, and made Sigiriya the capital of his kingdom. There are many legends attaching to this ancient mountain and its ruins which the natives do not approach for fear of the demons who are said to be in possession of the place. We now arrive at

#### THE NATURAL HISTORY GALLERIES,\*

which consist of three large rooms opening into broad open verandahs with recessed windows. The internal walls all

\* See "Natural History of Ceylon," by Tennent, London, 1861. Zoology of Ceylon, see *Prodromus Faunae Zeylanicae*, by Kelaart. Ceylon Birds, see Holdsworth, Murray, and Legge.

throughout the building are architecturally plastered, and the ceilings are of teak from Moulmein ornamentally moulded. It will be impossible to give an adequate description of the various specimens exhibited in these galleries, in handsome Spanish mahogany and teak cases. On the collections here, Mr. Haly, the Director of the Museum, remarks—"The scientific interest of the Fauna of Ceylon is very great, both on account of the great number of species and from the fact that a very large portion of them, as far as known, are peculiar to the island. . . . In the highest order of the Mammalia the little island stands out as marked by peculiar and interesting species."

#### MAMMALIA.

"The Civet Cat" (*Paradoxurus Aureus*, F. Cuvier), Mongoose (*Herpestes fulvescens*, Kelaart), the "Ceylon Langur" (*Semnopithecus cephalopterus*), the Great Wanderu (*Semnopithecus ursinus*), and the White Langur (*Semnopithecus albinus*) are peculiar to the island.

#### THE ELEPHANT.

The skeleton of a large-sized elephant is exhibited, together with the skull of another, the latter containing two enormous tusks. These noble animals abound in Ceylon. The manner in which they are caught and tamed affords an interesting study, and is most graphically described by Sir J. Emerson Tennent in his book on the subject.\*

#### THE DUGONG.

Among the large specimens must be mentioned the Dugong (*Halicornes dugong*, Erxleben), of which a male, female, and young one are exhibited. The female is 11 feet long, and is said to be the largest specimen caught.

The Dugong frequents the mouths of rivers, and other spots where the sea weed on which it lives grows freely, and

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\* *The Wild Elephant, and the method of capturing and taming it in Ceylon*, by Sir J. Emerson Tennent. London : Longmans, 1867.

it is found mostly in the north of the island, between Jaffna and Manaar.

#### BIRDS.

The birds peculiar to the island consist of about forty species according to Captain Legge, the well-known ornithological authority on the birds of Ceylon.

The birds of prey are represented by a few mountain hawk-eagles, and a rare crested falcon chiefly confined to the hill country.

The most remarkable of nocturnal birds are some large owls found in the forest region in the interior of the island. The forest eagle owl, a powerful raptorial bird, whose unearthly yell strikes terror into the heart of the superstitious villager when belated at night in the jungle solitudes, and its equally dreaded *confrere*, the brown wood owl, whose demoniac shriek is likened to the torturing cries of a child being strangled. Among a simple rural population like the Singhalese cultivators and villagers, the various cries of wild animals and birds among them give rise to much superstitious folklore, which is heightened by their belief in the doctrine of transmigration and devil worship. The bird of ill-omen, commonly known as the "devil bird"—

"The hateful messenger of heavy things,  
Of death and dolour telling"—

has the most gruesome legend connected with it, and may well rival the old fable of Philomela and Procne in Ovid's "Metamorphoses." The story is that a brutal and morose husband, doubting the fidelity of his wife, killed her infant son during her absence from home, and had it cooked and set before her on her return. The mother unwittingly partook of the dish, but discovered it was the body of her child by a finger which she found in the mess. In a frenzy she fled into the jungle and killed herself, and was metamorphosed into a *Ulama* or "devil bird." The appalling screams uttered by the bird is said to represent the agonised cries of the bereaved mother when she fled the house of her unnatural husband.

That strange bird, the Ceylonese Concal, deserves a passing

word of notice. It resembles a hybrid between the common crow and a wild pheasant, and it is commonly known as the crow-pheasant by sportsmen and others. It has a bright chestnut plumage with black and trailing tail, and is usually found haunting low scrub jungle or the neglected village gardens, looking for snakes, frogs, &c., on which it lives. It has a deep note resembling the words *hoot, hoot*, rapidly uttered, and, to anyone unfamiliar with the bird, is startling in its weird significance.

Another peculiar species is the black Drongos, a kind of shrike, the most perfect mimic among birds. These birds often disturb the quiet glades of the jungle by suddenly imitating the cry of the sparrow-hawk, and creating a panic among the bulbuls and other small birds, which hurry off to shelter with a babel of alarmed chatter; or they are said to mew like a cat in the garden trees of some jungle resident planter or forest officer, and bring the dogs out of their noonday siesta in a hunt after an imaginary cat.

During the wet months of April and May the low, familiar Onomatopoeic call of the Indian Koel-Cuckoo is heard everywhere in the low country, and doubtless reminds the English residents of their cuckoo heralding the advent of spring. In Ceylon the Koel-Cuckoo fills a like place in nature, as its call is heard only in the wet season when, after the prolonged drought, all vegetation renews itself after the refreshing rains. These parasitic Koels have all the habits and instincts of the English cuckoo, and during the months of May and June lay their eggs in the nest of the black crow. Unlike the callow cuckoo, the young Koel does not eject its foster-brothers, but is cast out itself by the enraged parent crows when they detect the fraud practised on them, and is cared for by the parent Koels till it is able to get about by itself. Some take kindly to their foster parents, and grow up together with a family of young crows.

The Magpie-Robin, a harmony of colour in steel-blue-black and white, is the songster *par excellence* in Ceylon, and is

always found in the garden precincts of low country bungalows, and at dawn, perched on some favourite tree-top, it pours forth a flood of melody; it sings so sweetly that it is doubtful whether it can be surpassed in this respect by any species of bird.

The Ceylon Starling, or *Myna*, is a familiar cage bird, and is taught to imitate the human voice. It makes an agreeable and docile pet, and is often quite a feature in a Ceylon bungalow, where its appearance as well as eccentric habits make it a general favourite. The native poets, following a Sanskrit model, often wrote introductory stanzas in their poems to some favoured bird, poetically entrusting it to deliver the message therein indicated. Of these messages, or *Sandesa*, Mr. Macready's translation of the best known of these, called "The Myna's Message," shows the appreciation the natives had of the versatile qualities of this bird.

The chief among indigenous game birds is the Peacock, though it is more sought after for its gorgeous plumage than for any sport. It is found in the dry jungles in the north and south of the island.

The smaller Jungle Fowl is found in the dry jungles, and in the hills to about 5000 feet, and affords good sport in the *nillu* fields. Its clear call is heard at dawn as it wanders about the chenas and jungle paths before the early sun has dispelled the dews of night, and gives life and colour to the landscape.

Partidges are also met with in the patna fields of the hill country, and in the dry sandy tracts towards the north of the island, and they more or less lead a secure life, undisturbed except by a passing sportsman.

Waders and Swimmers abound in very great numbers in tidal flats, estuaries, and lagoons to the north of the island, all being migratory cool season visitants.

#### REPTILIA.

The reptile fauna is peculiar to the island. Out of 133 species recorded from the island 39 are said not to be found

elsewhere. Of the snakes found in the island 19 are peculiar. The most dreaded are the cobra (*Naji tripudians*) and the Tic Polonga (*Vipera Russellii*). The Python (*Python molurus*) is rare. There is a curious belief that cobras carry about them a small shining stone in their mouths. The stone is said to shine in the dark, and the natives affirm that at night the cobra puts the stone on the ground and watches it as if fascinated, being ready to defend it with its life against all intruders. The Singhalese Buddhists abstain from killing snakes, and, as a rule, some of the natives domesticate snakes in their temples and houses, and the cobra (which is held sacred) is specially kept and fed, going in and out at pleasure. One hears of fearfully exaggerated accounts of deaths caused by snakes in the East. There may be deaths from snake bite among the natives, but there is scarcely one instance of a European having fallen a victim to such a cause.

#### FISHES.

The principal object in the Fish gallery is the large shark (*Rhinodon typicus*; Smith). It measures 23 feet long, and was caught at Moratuwa, a fishing village on the sea coast, about 14 miles from Colombo. It is a very rare specimen, and a duplicate one (of a smaller size) was, in 1888, presented to the British Museum by this Institution. Sharks appear in all parts of the sea coast, and one occasionally hears of persons in imminent danger of being seized by these monsters while bathing in the sea or even in the Colombo harbour.

The varieties of fish to be seen in Ceylon are numerous, and several specimens are effectively mounted and exhibited. Some idea of the large number of fresh-water fish can be formed when, to use Knox's words, "every ditch and little splash of water but ankle deep have fish in it." Professor Huxley, in writing about certain drawings and specimens of Ceylon fish submitted to him for report, wrote, "I do not hesitate to say that the collection is one of the most valuable in existence."

## PRECIOUS STONES AND MINERALS.

One case upstairs contains precious stones in their rough state, as well as cut and polished. Ceylon from time immemorial has been distinguished for its precious stones. *Ratnapura* ("the city of gems," as its name indicates) and its neighbourhood, the gem-producing region of the island, has yielded valuable rubies, sapphires, and cats' eyes, pearls, &c., many of which have fetched fabulous prices.

Two figures of elephants wrought out of plumbago are to be seen on the top of the precious stone case. Plumbago is the only mineral of commercial importance that is largely exported from the colony, and an abundance of the mineral is found in the island. The plumbago pits are worked in a very primitive fashion. The preparation of plumbago for shipping is done chiefly by Singhalese women. The plumbago industry is not only valuable to the country owing to the revenue it yields, but for the employment it affords to thousands of men, women, and children.

Descending the staircase and returning back to the "Central Hall," the rooms to the left are

## THE LIBRARY AND READING ROOM.

The library contains about 8000 volumes. There are two libraries housed in the Museum—the library of the Ceylon Branch of the Royal Asiatic Society, founded in 1845, which is in the Reading Room, and the Museum Library (the only *free* public library in the Colony) is in a room adjoining.

## THE MUSEUM LIBRARY

was founded with the Museum in 1876, and, besides the numerous books of reference, works relating to Ceylon, natural history, &c., contains a copy of every work published in the Colony since 1885, which has been furnished to the library. A most valuable collection of Buddhist palm leaf manuscripts is contained in the Oriental section of the library, many of them



presented by the King of Burma. Much of the important Singhalese literature of Ceylon, which is of the remotest antiquity, and dates several centuries before the Christian era, is enshrined in old manuscripts. There are 300 palm leaf MSS. works, historical; poetical, religious, &c. Catalogues of the books and MSS. are to be found in the reading-room. The Museum is used by readers only as a consulting library, and books are issued for reading only within the building. Fiction is excluded from both libraries. There is also stored in the Museum a part of the 6500 folio volumes in manuscript containing the records of the Dutch administration of the island. The existing records extend from 1641, two years after the Dutch first established a footing in Ceylon, to 1795, when their rule was displaced by the British. Some of these records have been translated and published.

THE CEYLON BRANCH OF THE ROYAL ASIATIC  
SOCIETY LIBRARY

contains many valuable books on Ceylon archæology, Oriental literature, and a large collection of the publications of learned societies with whom the local institution exchanges its journal. The books belonging to this collection are issued only to members.

## GENERAL NOTES.

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By E. HOWARTH, Secretary.

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IN the last Report attention was called to the inquiry that was being made into the Museums of the Science and Art Department, by a Committee of the House of Commons. The labours of this Committee are not yet completed, and it would, therefore, be inopportune here to comment on the subject. Two Reports have been issued by the Committee, together with Minutes of Evidence taken before them, and these give information of considerable interest and value to all concerned with the important work done by the Circulation Department of South Kensington Museum. The first Report deals chiefly with the unsafe surroundings of the Museum, and the inadequacy of space for the proper exhibition of the collections ; and there is gratifying evidence that the recommendations made by the Committee, in relation to these points, are receiving practical consideration, for already the disfiguring and dangerous adjuncts to the Museum have been removed, leaving room for those permanent additions to the building which are required to make it worthy to fulfil its functions as a National Museum of Science and Art. The second Report contains also the full Minutes of Evidence given before the Committee, which throw an interesting light on the administration of the Department, due attention being given to its connection with the various provincial Museums. In this respect the Council of the Museums Association have asked to be heard before the Committee, as representing the views of Provincial Museums ; and it is desirable that curators of Museums who have any suggestions or criticisms to offer in connection with the Circulating Section, so far as it concerns their own Institution, should lay their views before the Secretary to the Association, in order that they may duly be brought before the Committee.

There is a steady extension of the Museums and Gymnasiums Act throughout the country, and as inquiries are frequently made as to the places in which the Act has been adopted it may be useful

to give here a list of the towns where it is in force. These are—Bradford, Burslem (Wedgwood Institute), Colchester, Folkestone, Leicester, Liverpool, Northampton, Reading, Salford, and Stockport.

Naturally and properly, there is a tendency for private collections to become absorbed in public Museums, now that these institutions are becoming better organised and managed under Corporate control, and it is therefore important that the best possible use should be made of such valuable acquisitions. This is a matter in which the Association might take useful action so as to ensure appropriate destination to available collections, and to give some guarantee of their permanent preservation. A letter, addressed to Mr. Hoyle from Prof. Flinders Petrie, has such practical bearing on this subject that his views deserve to be put before the members of the Association, and the correspondence relating to this subject is accordingly here given :—

“University College, Gower, N., W.C., 26th August, 1896. My dear Hoyle,—The question of the destiny of a respectable private collection was being talked over with me by a friend to-day. The owner does not like to leave it to his town, because—as he says—it may fall through owing to neglect in future. This is a difficulty that must often be felt; and there is only one clear way out of it when such collections would be mere duplication in the London Museums. The way, it seems to me, is for the Museums Association to form a trust for collections. Then anyone could leave their collections to the trust, with a preference expressed for certain places. In this way, if any town neglected a trust collection, the Association would simply resume possession and pass it on to some other place where it could be better managed.

“This might result in a large number of collections being floating property held in trust and transferred from place to place or exchanged round *en bloc* every twenty or thirty years.

“Anyhow, such a system would be a rod in pickle for any place that had trust collections, and would be a relief to collectors. Moreover, it should hold money as well as objects, so that small endowments might be attached to collections to ensure their well being.

“Just consider this notion, and see if it would work. It might become a very potent factor in the local museum business.—Yours ever,  
W. M. FLINDERS PETRIE.”

“Corporation Galleries of Art, Glasgow, 1st September, 1896. My dear Hoyle,—The suggestion made by Prof. Flinders Petrie is one of great importance, and if we could devise means of elevating

the Museums Association to the position and influence indicated in his letter, a great good might result to many provincial communities. The number of fine collections which have been built up by the enthusiastic labour of single individuals and then wrecked by the inertness of public bodies must be almost countless; and if means could be devised whereby such collections could be conserved, and made available to the public, a great gain would be effected, collectors would be encouraged, and their generosity would be stimulated.

"But the development of the Association into a property-holding and administering body is surrounded with great difficulties. It would demand the amendment of the constitution, and the incorporation of the Association; but these would be simple enough. It would require the establishment of a permanent central office, with a staff, which means the expenditure of a good deal of money. Let us suppose this got over, and the Association actually entrusted with the supervision of certain collections. Should the contingency contemplated by Flinders Petrie arise, and it became necessary to resume possession of a collection neglected or abused by some community, very grave difficulties would arise. The Association could not interfere till the case became very gross, and till probably the collection was seriously deteriorated. The interference would be a very delicate task; but after that was over the Association would find itself in charge of a much injured and discredited collection which any community, knowing its history, might be very unwilling to accept, and what then would be done with the property? There are many other phases of the matter for and against which would form an excellent subject of conference, out of which some practical measure might arise, and I therefore think the question should be laid before the Association.—I am, yours very truly,

JAS. PATON.

"W. E. Hoyle, Esq."

"University College, Gower, N., W.C., *8th September*, 1896. My dear Hoyle,—Thanks for the sight of the enclosed. I do not feel the force of all the difficulties.

"(1) A central office and staff would not be needful, as offers of trust deposits are not so hurried but that they might be dealt with at each annual meeting, especially if the secretary made a few inquiries in advance. Every society must have some hon. secretary.

"(2) As to resuming possession, let collections be appointed like many professors, for five or ten years, renewable. There is a far more delicate matter in a man's colleagues voting whether he shall

be renewed or not. Yet that is continually done. The vote of an annual meeting is surely impersonal enough.

"I think that often a place would ask to be relieved of a collection which had ceased to be of interest, and was felt to be in the way. If this could be done, and the move made without any slur on the place—at its own request—there would be no difficulty.

"But in any case, be the difficulty and delicacy what it may, the question is not, Is the matter difficult? but, Is the difficulty worth the saving of the collection?

"In general, the mere knowledge that a collection was renewable on its being so desired, in reasonable conditions, would go a long way to insuring that it was either kept in good order or 'returned with thanks.'—Yours ever,

W. M. FLINDERS PETRIE.

"There is another very important view. This trust would enable collections to which the National Museums were blind (like the Faussit Saxon at Liverpool) to be kept afloat on loan until the value of them was recognised and they could be nationally preserved. As it is, unless the British Museum or South Kensington happen to understand a thing just when it is to be had, it is too often destroyed instead of biding its time. All my unique Naucratis iron tools have been entirely lost owing to Newton refusing to have them because they were 'ugly.' His one-sidedness has destroyed altogether a series that can perhaps never be replaced."

This subject might advantageously be further discussed at some future meeting of the Association.

Mr. Bernard H. Woodward, curator of the Museum, Perth, Western Australia, would be glad to receive sets of the descriptive and other labels in use in Museums. Mr. Woodward will be quite willing to purchase them if there are any for sale, or in any way to reciprocate the courtesy of members of the Association who will kindly forward to him samples of their labels.

Reports and handbooks have been received from various Museums belonging to the Association, and short notices of these are here appended. It may again be pointed out to curators that the best source of information about the work, changes, and development of Museums generally is "Natural Science," an indispensable monthly journal in all Museums, and it is scarcely necessary to copy anything from that journal into these notes. It might be well here to mention that the following remarks are based entirely on the Reports and handbooks supplied, together with such knowledge as the writer may have obtained from personal inspection of some of the institutions. It ought scarcely to be necessary to say that in no case is

there any personal allusion to individuals connected with Museums, words of approval or criticism relating to Museums alone, few of which are above criticism and none beneath it. One of the former was only discovered after a somewhat critical note of its Report had been published in the last volume of Proceedings, and now, knowing its position, silence is assured.

*American Museum of Natural History.*—The Report of this Museum for 1896 records steady progress with increased appreciation of its active work. Here a systematic series of lectures are given with a distinct educational tendency, and they have been so well received that, in addition to courses of lectures delivered at the Museum to teachers and others connected with various educational institutions, the lectures have been repeated at different centres throughout the State. The common schools of the larger cities of the state have been provided with apparatus and lantern slides requisite for the repetition of the lectures delivered at the Museum to the teachers of the public schools. The Museum also furnished, for the use of the curator, a suitable room for the instruction of school superintendents in the use of the apparatus. This is an admirable method of extending the work of the Museum, and bringing it in direct touch with all the other agencies actively promoting education. The Museum is also fortunate in receiving substantial support for carrying out researches in various parts of the world by means of expeditions for the collection of specimens bearing on the habits and customs of the natives of various regions. In fact, the operations of the Museum are concerned quite as much in the systematic collection of objects by their own staff, as in their proper arrangement and utilisation in the Museum.

*Bootle.* There is nothing of a special character relating to the Museum in this Report. The work of arranging the scientific collections has so far progressed that the services of the special assistant engaged for the ~~work~~ have been dispensed with. The curator, Mr. Ogle, who combines the dual office of librarian and curator, may, from his well-known enthusiasm and unwearied energy, be trusted to maintain in vigorous action the vitality of the Museum, burdened though he is with other duties. His illustrated chats on various subjects in the Museum appear to have been highly appreciated. This Report scarcely conveys the impression that the Corporation of Bootle have quite realised the advantages of a well-supported Museum in a community of the wealth and importance of Bootle.

*Brighton.* The Art Gallery of Brighton has been used with much success for several attractive exhibitions, and the permanent collection has increased to such an extent as to exercise the minds of the authorities as to the space adequate to its proper display. Here, as elsewhere, the establishment of an Art Gallery insures the display of the spirit of civic liberality that delights itself in providing treasures of art for the good of the community. Brighton is also especially fortunate in the possession of the fine collection of naturally mounted birds formed by the late E. T. Booth, and bequeathed by him to the town. This collection, known as the Dyke Road Museum, has long been familiar to ornithologists, and was the first attempt made in England in a systematic manner to display stuffed specimens of birds so as to suggest their natural surroundings. It is rich in suggestion to the curator, who, concerned more with the unlearned public than with the academic paths of science, desires to make his Museum a place of attraction and pleasure to his visitors, thus extending, without any obtrusive attempt at instruction, their knowledge of local birds. In large towns there is now a very wise tendency to multiply Museum buildings, placing them in different parts of the town, and these ought each, of course, to have a distinct and separate purpose in the range of its illustrations. The Dyke Road Museum at Brighton is an excellent example of a self-contained Museum that might be taken as a guide to the most desirable method of illustrating the avifauna of any given district in a way that, by its very charm to the eye, would induce the mind to seek to know more of this, perhaps, the most generally popular of all branches of natural history. The catalogue of birds of the Dyke Road Museum, the second edition of which was published in 1896, gives a very good idea of the range and aims of the Museum, and the illustrations, clear and good, strikingly proclaim the excellence of the mounting, for they look much more like the living birds in their native haunts than reproductions from photographs of stuffed skins. In clear readable type much information is given about the birds, mostly from personal observations, and the interest which the perusal of the catalogue arouses is testified by the desire felt on reading it that it went on further. For instance, if a short paragraph were added to the notes on each bird giving an epitome of its food, habits, indification, and habitat, without trying to make it a handbook of local ornithology, its value would be still further increased. This suggestion is made, while recognising the obvious purport of the catalogue and appreciating fully the value of the information so easily thus afforded to the Museum visitor, who is not always a devoted student of science. The curator's instinct at once induces him to note the classification of any Museum group he

comes across, for to him classification is everything, or nearly so, and the man who would venture to cast doubt on its all importance in any Museum is, of course, not fit to associate with curators, or to have anything to do with Museums. Therefore, now that Mr. Booth has gone, and the collection has come into the hands of the public Museum authorities, it is not surprising to read that "The order of a few of the cases has been re-arranged, so as to bring together closely allied species wherever it is found practicable. The fact of the cases being of four different sizes prevents any more complete classification of the Museum." Quite so, nor do the birds alive in nature arrange themselves in scientific order, and when the special purpose of a collection is so far as possible to reproduce Nature, rather than to teach science, is it desirable to attach any importance to classification? Mr. Booth's remarks on the collection, here reproduced in the new edition of the catalogue, are well worth quoting, as showing the idea of an ardent bird-lover as to the best way of making their charms appeal to others:—"All scientific arrangement has been given up as hopeless in a collection where the chief object has been to endeavour to represent the birds in situations somewhat similar to those in which they were obtained; many of the cases, indeed, being copied from sketches taken on the actual spots where the birds themselves were shot. The few notes and facts recorded are solely the result of personal observation, and with two or three exceptions (all noted), not a book of reference has been opened." All that is very unorthodox and unscientific, but refreshingly natural and delightfully attractive.

*Cardiff.* Final arrangements have now been made for the new building for the Museum and Art Gallery to be erected on a site within a park lately acquired by the Corporation, and provision is also secured for a National Museum of Wales to adjoin the local Museum in the event of it being decided, as is probable, to locate the national institution in Cardiff. Considering the thoroughly efficient and enlightened manner in which the Museum and Art Gallery in Cardiff are being organised, under the present able management there can be no doubt that the scheme of a National Museum for Wales would be there most suitably matured and carried out with broad-minded judgment. The Report shows that the collections are being largely augmented according to a well-defined scheme, which promises to build up a Museum of a highly instructive and interesting character, likely to be of the greatest possible use to the public. The aid of experts has been secured in naming the collections, and the curator is industriously bringing them into line with the latest and best Museum requirements. A descriptive list is given of a well-thought-out series



of models to illustrate various phenomena in physical geology, designed and constructed by the curator.

*Dresden.* "Guide to the Royal Collections of Dresden," translated by C. S. Fox, and published by authority at the price of one mark, is a testimony to the fact that no mean proportion of the visitors to the great continental Museums are speakers of English and also readers of that language only. This guide, extending to nearly 300 pages, gives a brief account of each department (including pictures), and then briefly indicates the arrangement and contents of the collections. It is a very useful handbook.

*Dublin.* Like all other Museums this institution has to wail the lack of sufficient space necessary to do proper justice to its valuable collections. Rich as Ireland is in antiquities, and zealous as is the work of the staff of the Museum, this national institution scarcely receives from the British Government the consideration and accommodation which it merits. The Report for 1896 notifies various changes in the arrangement of the collections, making them more available for inspection and study. Special attention has been wisely given to the Irish fauna. An experiment has been tried in the form of "Museum Demonstrations," or personally-conducted tours through the Museum on apparently new lines, of sufficient interest for the details to be given here. The object is to teach persons that, in order to profit by the collections, they should select the objects illustrating some particular branch of art or of natural history, and study such according to a definite plan in regular order. Admission to the demonstrations is by ticket only, and these have been limited to the number of persons who can at one time see the objects on which the demonstrator intends to speak. So far the experiment has been entirely successful, the persons who have attended have invariably been most attentive listeners, and shown the greatest interest in the objects pointed out to them, and the remarks made, and the reports and comments in the Irish press, have been very favourable. Various members of the staff of the Museum and College of Science have conducted the demonstrations, at which from thirty to fifty persons have attended each night, the subjects dealt with embracing art, botany, zoology, antiquities, and manufactures.

*Glasgow.* The opening paragraph in this report gives a most encouraging account of the work of the Museums and Galleries, which are being developed in Glasgow in a thoroughly enlightened spirit. The magnificent building in Kelvingrove Park, which is to be the chief home in the city of art and science, is making steady progress

to completion, and promises to be the finest institution of the kind in any provincial town in Britain. Not content with this a new People's Palace, to comprise a Museum, Art Gallery, and Winter Garden, has been erected on Glasgow Green, in addition to the already existing Museum at Camphill, the Municipality thus recognising that in such a large city the advantages of Museums should, so far as possible, be provided throughout the city. Glasgow, in the magnitude of its well-organised and efficiently managed municipal enterprises, is envied greatly for the commercial success of its many undertakings, and it also stands forth as a laudable example in furthering the higher pleasures and aspirations of its people. The question of the Sunday opening of the People's Palace has been discussed with a considerable amount of heat in Glasgow. The Town Council decided by a large majority that the Museum and Art Gallery portion should not be so opened, but it was unanimously agreed that the Winter Garden should be free to the public during certain hours on the Sunday.

*Hastings.* This charming seaside place has its own Museum Association, which has organised a Museum of Science and Art that gives promise of active utility and educational development. Unfortunately the meagre Report to hand only deals with the first year's history. This, however, is so encouraging as to give prospect of a thoroughly satisfactory Museum being duly built up.

*Liverpool.* The Museum has acquired, amongst many other gifts and purchases, the fine ornithological collection formed by Canon Tristram, with which some of our members became acquainted on their visit to Durham in 1895. The Report shows that the Museum is being thoroughly overhauled in arrangement so as to bring it into accord with the latest knowledge in the subjects it represents, and various agencies are in operation to make its contents understood and appreciated. Lectures of a popular and special character are given in the winter with very satisfactory attendances, and school classes under the new code largely avail themselves of its educational privileges. One of the special features of this Museum is the aquarium, and it is one of its greatest attractions. The extensive list given of animals that have been placed in the aquarium during the year shows what an excellent place it is for the study of marine biology.

*London: Horniman Museum.* This Report gives in considerable detail the various events, great and small, that have occurred in connection with the Museum during the year 1896, and records some interesting additions to what is decidedly a popular and attractive place of resort. The Museum seems to be used largely by school

classes and clubs, in this way testifying to its useful character. A number of illustrations of objects in the Museum, with descriptive notes, are given at the end of the Report.

*London: Whitechapel.* Considering the size of London, district Museums are not scattered about it quite so plentifully as might be desired. Perhaps this arises from a reluctance to appear to compete with the great National Museums that adorn the Metropolis. And yet this should not be so, for there is abundant room and plenty of work for branch Museums in many parts of London; and that they can be organised in an efficient and thoroughly scientific manner so as to be both useful and attractive is demonstrated by the Museum at Whitechapel. Reference has been made in another part of these notes to the wisdom of confining branch or district Museums to the illustration of one particular subject, as in the case of the Booth Collection at Brighton. This principle is not being acted upon at Whitechapel, and considering that it is in a district, as large as many towns, there may be justification for the difference. At anyrate, there is always danger where funds and space are greatly restricted in attempting too wide a field of knowledge in a Museum. Zoology, botany, geology, archæology, and ethnology each require many specimens to satisfactorily illustrate them, and when the locality has no special relation to any one of these subjects then there is no temptation to specialise, and the difficulty of organising a general Museum is thereby greatly increased. A personal visit to the Museum at Whitechapel showed at once that zoology was receiving the greatest share of attention, and very properly so, for it is perhaps the one subject of all others, except art, in a Museum that attracts the general visitor. And it was no mere exhibition of dry bones, for the specimens were not only admirably arranged, but they were explained by drawings and descriptions to such an extent as is not always found in more pretentious places. Knowledge, care, and much enthusiastic labour had been bestowed in working out a readily understood, and fairly comprehensive view of the animal kingdom, the various groups being judiciously selected and intelligently correlated. As a place of instructive interest to the general visitor, and of great educational value to the student, the Whitechapel Museum is well performing its functions. The times when visitors are allowed to inspect it are, however, peculiar. Except on Saturdays the doors are not opened until 3 p.m., thus, in winter time at least, putting it out of use during the hours of daylight, thereby greatly reducing the opportunities available for studying its contents. Local opinion may find that night schools and night Museums are best for Whitechapel, though this institution gives one the impression of being of too high a value for its benefits

to be even thus locally restricted. It deserves freer space for its excellent collections, and full range of disseminating the useful work it is capable of doing. The average attendance is 275, rising on Saturdays, when it is open from 10 a.m. to 10 p.m., to 558. An excellent series of scientific lectures has been given by some of the most eminent scientific men in London, all of which were most satisfactorily attended. An exhibition of spring flowers was held, attracting over one thousand visitors each day. Exhibitions of Children's Natural History collections were arranged, and the Museum was used for the visits of school children in accordance with the new code. It will thus be seen what a broad view is taken of the work of the Museum and how thoroughly it is carried out under the administration of the curator, Miss Kate M. Hall, whose well-grounded knowledge of Museum work and capacity for carrying it out were conspicuously shown in the able manner in which she took part in the Conference of the Association at Oxford.

*Manchester Museum, Owen's College.* Steady and systematic is the work pursued here, pithily and modestly it is set forth in this Report. Of the special features may be quoted "a series of Museum demonstrations for teachers similar to the course given last year was held by the keeper on Saturday mornings during the Michaelmas term. There was an attendance of about twenty." "The Museum lectures have been given in accordance with the programme published, and on each occasion there has been a large and appreciative audience." "It is proposed during the coming session to give a number of demonstrations and lectures on Sunday afternoons." Some further Museum handbooks have been published. In addition to the handbooks a new series has been inaugurated, entitled "Notes from the Manchester Museum," which will consist of papers relating to the Manchester Museum, and its contents reprinted from various serial publications. They are issued for the convenience of those who are interested in the work of the Museum as a whole, or in the special topics of which they treat." These few extracts from the Report show in what a thoroughly educational way the Museum is being utilised. It is deserving of notice that, in the Report of the delegates to the Museums Association meeting at Glasgow, the closing portion of Mr. Paton's presidential address is quoted in full, and it is similarly quoted in the Report of the Sheffield delegates, thus showing how strongly it impressed the members.

*Perth Museum, Australia.* The Report for 1895-6 records the official opening of this Museum under the curatorship of Mr. Bernard

H. Woodward. In the first year of its history the specimens number 2521, the Australasian fauna being specially attended to, for which purpose a collector has been appointed who devotes himself to the duty of securing specimens for the Museum from all parts of the Colony. The series of index cases, which serve so admirably for the teaching of biology in the entrance hall of the British Museum (Natural History), have made their impression in this far-away land, for the Report states that "index" cases are forming a feature of the Museum. The curator mentions that the labels at present attached to the specimens are only temporary, and he would be glad to receive from curators of English Museums samples of the various labels in use, descriptive and otherwise. The attendance at the Museum is not very large, the daily average reaching sixty-six. Here, as in the mother-land, the Sunday question gives trouble, and the Museum authorities have asked Parliament to sanction the opening of the Museum on Sundays. An Art Gallery is being established in connection with the Museum.

*Salford.* The Report for 1897 shows lively activity in working up the collections in this Museum, which had for some years been rather neglected, a fact that was shown by the relaxing of the interest of the general public in its contents. A statistical table giving a return of visitors for forty-eight years shows a remarkable falling off in the attendance, especially in recent years, it having gone down from 2000 per day in 1883 to 424 in 1895. That is apparently the low-water mark, and the better attention given by the authorities to the condition of the objects in their care is being acknowledged by an increasing number of visitors. But the committee and curator are to be congratulated on higher grounds than those of mere numbers, for the Report shows that they realise the value of putting the Museum into thorough scientific order and making its contents plainly understood. Additional cases have been obtained; a naturalist and taxidermist has been engaged for the purpose of cleaning, preserving, and re-arranging upon the most scientific system (as yet an uncertain one) the British ornithological collections; and the mineralogical and geological collections have been completely re-arranged and named by Mr. Herbert Bolton, who has prepared a handbook to them which has been published during the year. Mr. Mullen, whose energy and knowledge have so conspicuously borne fruit in the Museum, has also prepared and issued an official handbook to the ethnographical section, and one to the fine arts section, which will undoubtedly prove a great help to the public understanding of these collections. Salford is evidently coming into line with the advanced Museum work of the present day, with all its manifold

benefits to the people, and is not to be left behind even by its adjoining neighbour, Manchester, who possesses all the advantages of a long established seat of learning in connection with its Museum, and all the assistance of present academic associations. There is one special point in connection with the Salford art section of the Museum that has a suggestive meaning. After epitomising the result of an overhauling and cleaning of the pictures, the Report states that four portraits of local celebrities have been presented by the Art Gallery to the Town Hall. It is often an advantage to recognise that an art gallery is not a portrait gallery, and that its proper function is concerned with the exhibition of works of art.

*Sheffield.*—A remark in the Report of this Museum for 1897, applying as it does to most other Museums, may here be quoted as stating an interesting fact. "Like all similar institutions throughout the kingdom, there has been some falling-off in the number of visitors—the time of jubilation apparently being incompatible in the public mind with full attention to the attractions and advantages of Museums and Art Galleries." The most important event in this Museum has been the discovery of a layer of fossil plants along an extensive section of the Midland Railway at Sheffield, which was being excavated for widening the line. Some half-dozen fossil trees were laid bare in an upright position, one of which was safely removed to the Museum, and numerous plants were found and secured. With reference to the visits of schools to the Museum, in accordance with the new code, some useful rules were drawn up by the clerk to the School Board and issued to the teachers. These state—(1) Visits may be paid to the Sheffield Public Museum on Tuesday, Wednesday, and Friday afternoons, from 3.30 to 4.30. (2) Visits are only to be paid with the object of gaining information on a certain subject or class of subjects, and not simply to look round the Museum in a general way. The curator has expressed his willingness to assist the teachers in giving explanations on any objects in the Museum. (3) Scholars are only to attend under the superintendence of a teacher or teachers. Satisfactory arrangements must be made for the instruction of the teacher's class, or the remainder of the class who will not visit the Museum. (4) The teacher in charge is to take full notes of all explanations given by the curator, and the notes are afterwards to be re-capitulated at the school. (5) Applications for permission to visit the Museum must be made on Form 232 (copies enclosed); three copies of the application to be sent to the School Board office at least two weeks before a proposed visit, so that notice may be given to H. M. Inspector and the curator of the Museum.

*York.*—This ancient city, the capital of Ecclesiasticism, might well benefit by the example of its newer sister, the capital of Cottonopolis. According to the Report the funds at its disposal are not at all sufficient to carry on the work it has, in other respects, the means and power to do. A Museum stocked, aye, almost packed, with well-selected, well-kept, and most valuable scientific treasures, a pleasant garden wherein are placed archæological remains of abiding local and general interest, and an influential society containing within itself men capable of making all these things useful to the uttermost, are influences of good to the city that should be liberally supported and encouraged by the civic authorities. With funds chiefly drawn as subscriptions from the members of the Philosophical Society, all the expenses have to be met, and it speaks well for the scientific zeal of this society that they should be able to maintain these places in such a high state of efficiency. But their value and usefulness extend far beyond the pale of the Philosophical Society, whose work is so seriously crippled with the unavoidable establishment charges incident on such extensive premises; and it is a duty of the whole city, too palpable to be neglected, to share in maintaining an institution which is not only of direct benefit to the community, but which also adds to the glory and credit of a municipality. The Corporation of Manchester has assisted the Museum at Owen's College with a grant of £400, thus acknowledging the direct benefit the city derives from such an institution, and surely York, with the opportunities Parliament has so freely offered to enable it to do likewise, will not hold back in such a meritorious cause. The Report for 1896 gives a summary of the work done in the Museum and the present condition of the various departments, which are all being utilised and developed with knowledge and skill. There are also useful papers on some of the collections published in the Report.

## PUBLICATIONS.

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"THE PROVINCIAL MUSEUM." By Herbert Bolton, F.R.S.E. (Reprinted from *Natural Science*, December, 1897.) Mr. Bolton refers to the great importance now attached to the provincial Museum question, and calls attention to the remarks thereon of Sir William Flower and Prof. Brown Goode. The unsatisfactory and anomalous position of many Museums comes in for criticism, as well as the precarious support given to them, both by municipalities and Government. His suggested plan rather tends to put them all on the same footing, and, to a great extent, carry them out on the same lines. To do this it is suggested that Government should make an annual Museums grant, which would depend on certain conditions of work and management which the Museum should be called upon to observe, very much after the style of the payment on results made to schools after inspection, which is now going somewhat out of use. The consolidation of the Museum system under a central authority might possibly lead to improvement in certain directions, but it would greatly weaken individual efforts, and might seriously retard future development. What is required is that Parliament should give municipalities a free hand to maintain Museums, and this they show an increasing willingness to do, with results in the highest degree satisfactory, as evidenced in most of our large towns. In smaller places Mr. Bolton's idea of having a kind of federation of Museums might work satisfactorily without going direct to Government. Why should not Manchester, for instance, be the centre of Museum life and activity for smaller places round about, not equal to providing unaided a Museum of their own? The advantages, even necessity, for Museums is now everywhere being increasingly recognised, and the thoughtful suggestions being made about them in such papers as this of Mr. Bolton's is an evidence of wide-spread interest in their establishment.

"THE HOME UNIVERSITY : A MAGAZINE OF ALL-ROUND KNOWLEDGE AND AIDS TO MEMORY." (The Educational Museum, Haslemere : West, Newman, & Co., London.) This magazine makes its appearance with 1898, and, whilst dealing generally with the whole



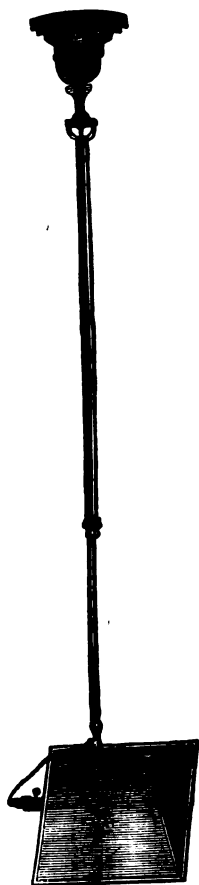
range of knowledge rightly comprised in its title, it gives promise of being specially serviceable to Museums. According to the prospectus, Museum notes, such as can be practically used in Museums, will form a distinct feature of the magazine. All concerned in learning will find it of deep interest and a valuable aid as a refresher to memory of many things which work suggests, but which the memory fails permanently to retain.

“COLOURED FIGURES OF THE EGGS OF BRITISH BIRDS, WITH DESCRIPTIVE NOTICES.” By Henry Seebohm. (Sheffield: Pawson & Brailsford). In some sixty plates, each containing several figures, the eggs of all the British species of birds are here figured in the highest perfection of colour printing. By a special process the natural colours of the eggs were transferred to the plates without any intervening drawings, and the result is the most natural reproduction of them that has yet appeared. To sit down with this book before a collection of British bird's eggs would be a delight to every oologist, for the close approximation of the figure to the actual egg could never be mistaken, and it should prove invaluable to every curator who possesses a collection of eggs in his Museum. In one thick handy volume, it is much lower in price than the earlier edition of Seebohm's work, and is on a more concise and readily useable plan. There is a short account of the range of each bird, with full description of the nest and eggs, the accuracy of which is assured by the name of the author. The colour printing was done at the works of the publishers, and the whole book is of English production from cover to cover.

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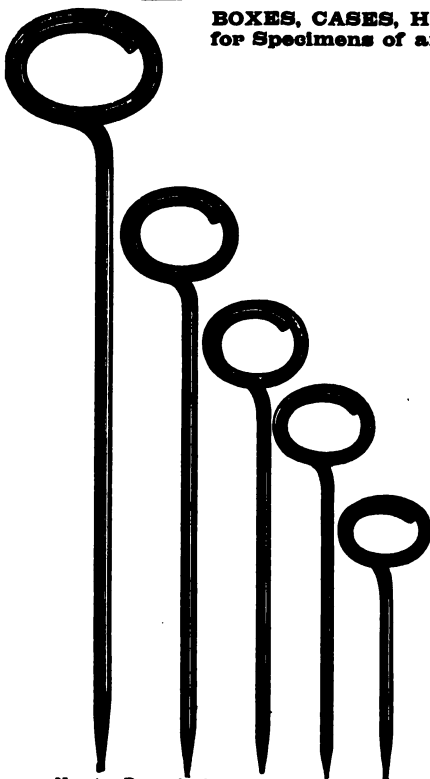
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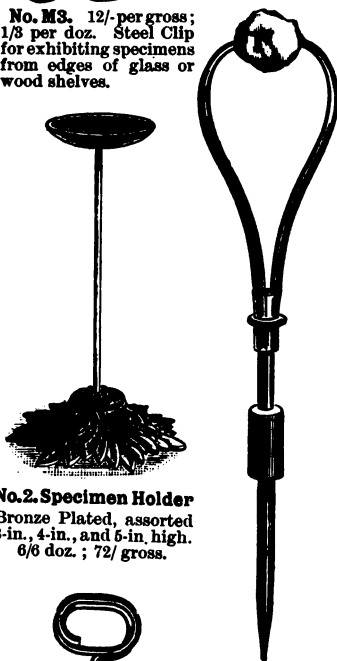
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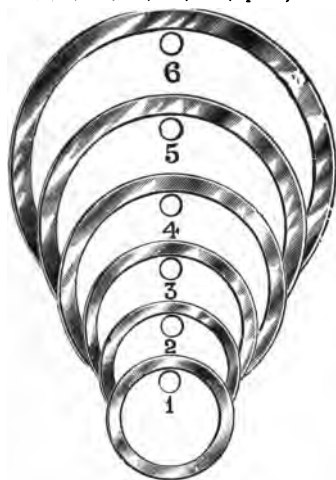
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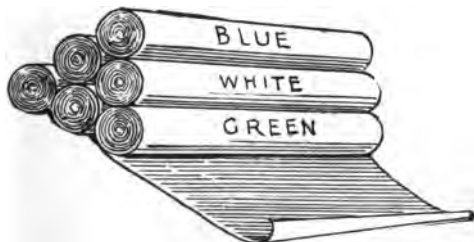


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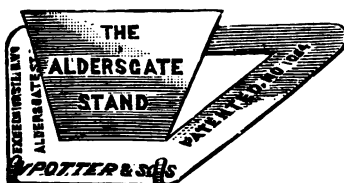
Large K



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